the OIL AND GAS JOURNAL

APRIL 10
1941

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PRICE
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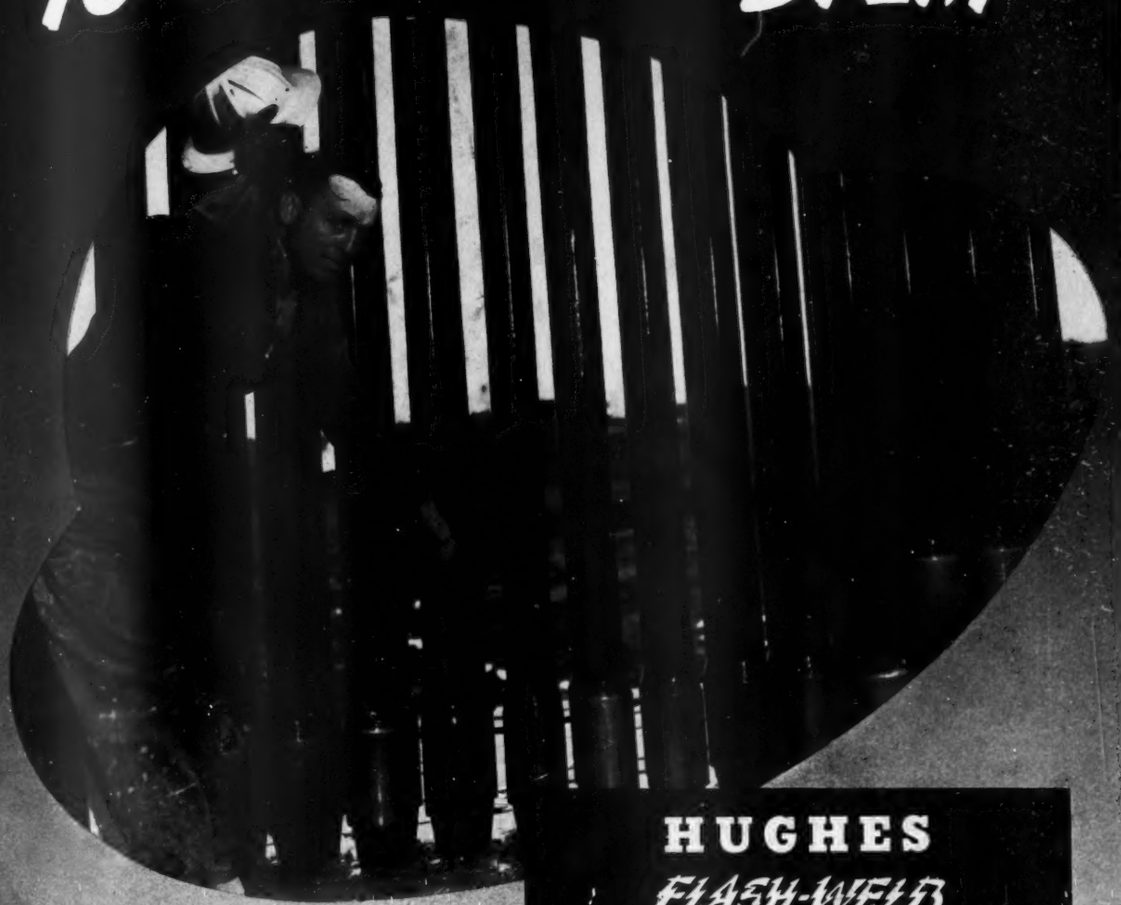

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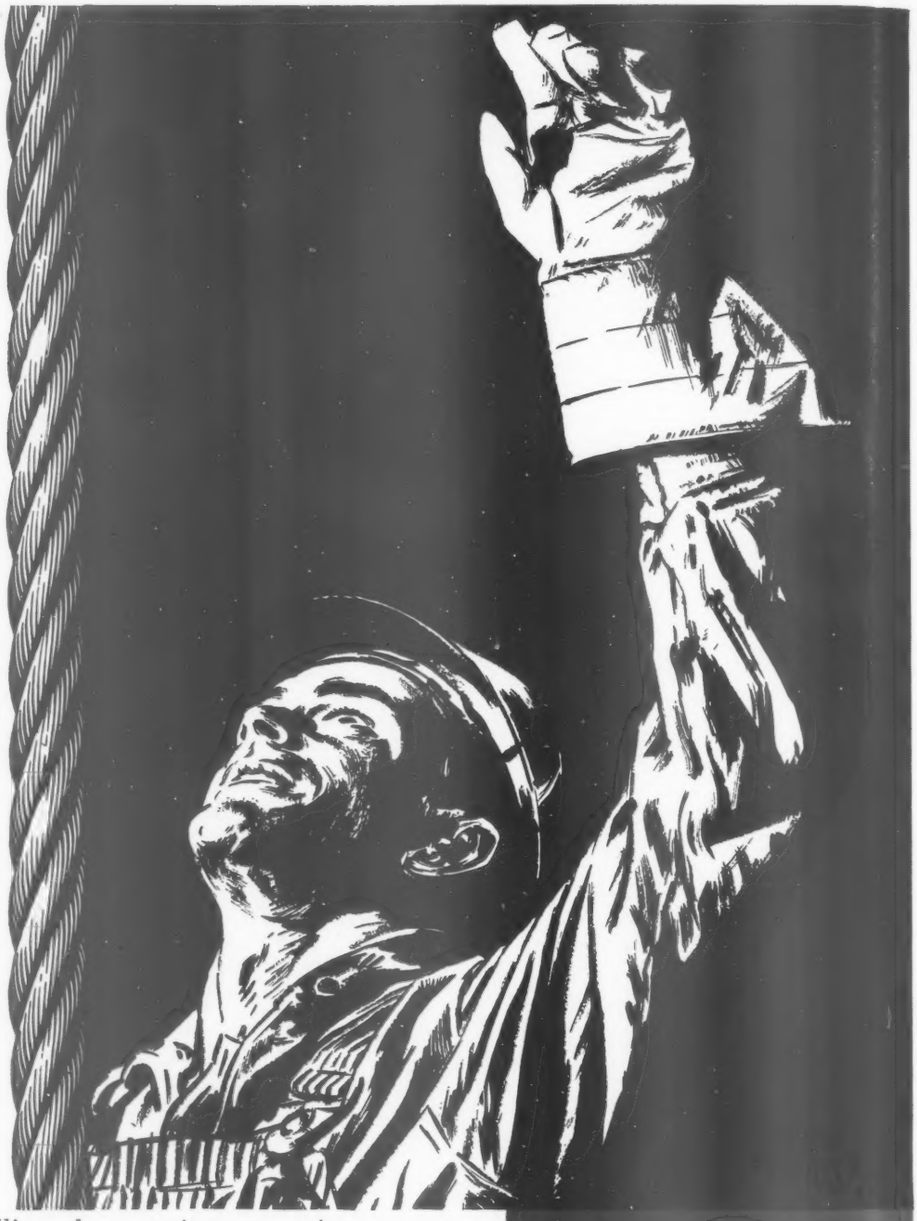

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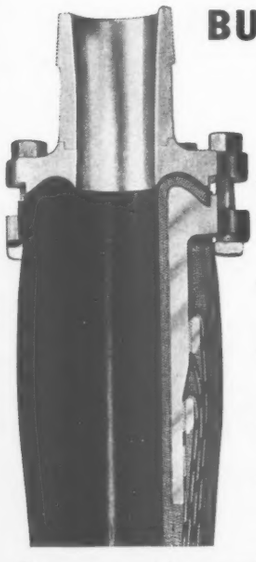

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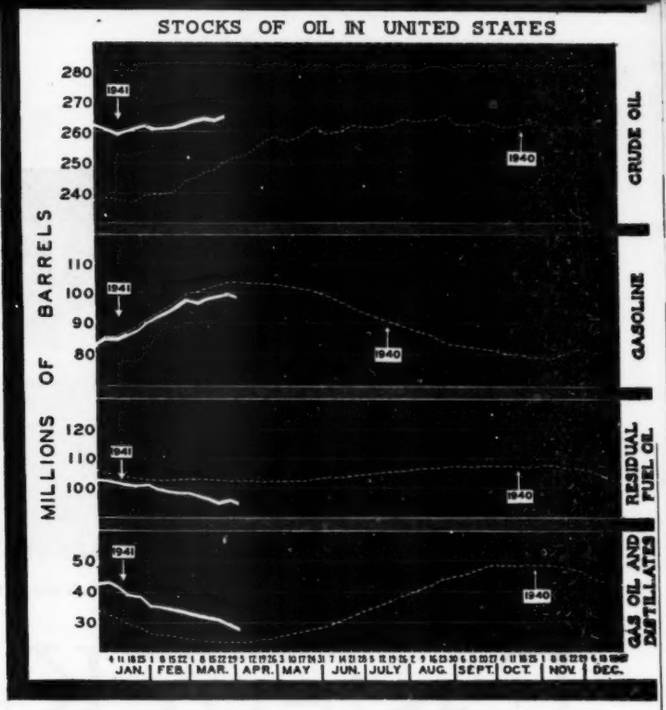
Trends

General Advance in Gasoline Quotations East of West Coast



GENERAL advances in gasoline tank-wagon prices, east of the West Coast with the exception of the southeastern states, were the past week's contribution to improved domestic markets. The increases inaugurated by several of the largest marketing companies and applying to approximately 70 per cent of the gasoline sold in this country, according to reports the first of this week, were being supported by other sellers. Observers were confident that the higher price levels would be definitely established within a few days. The advances in tank-wagon sales to dealers were being reflected in retail quotations and tank-car, barge and truck quotations were also generally higher. In some cases, spot-market sales absorbed all of the gains in the tank-wagon quotations.

CRUDE PRODUCTION *3,510,825 bbl. daily average—down 251,855 bbl. One year ago 3,754,738 bbl.*

CRUDE STOCKS *266,187,000 bbl. as of March 29—up 2,330,000 bbl. One year ago 250,561,000 bbl.*

GASOLINE STOCKS **99,110,000 bbl. as of April 5—down 617,000 bbl. One year ago 103,686,000 bbl.*

RESIDUAL FUEL-OIL STOCKS *95,371,000 bbl. as of April 5 — down 781,000 bbl. One year ago 102,771,000 bbl.*

GAS OIL AND DISTILLATES *28,824,000 bbl. as of April 5—down 1,125,000 bbl. One year ago 23,420,000 bbl.*

REFINERY RUNS *3,600,000 bbl. daily week ended April 5—down 25,000 bbl. One year ago 3,455,000 bbl.*

*Includes 6,527,000 bbl. of aviation fuel.

A review of gasoline price trends over the past year will clearly show the need of these advances. In 1940, posted dealer quotations for gasoline declined 1½ cents per gallon from the start to the close of the year, reaching the lowest levels in the history of the industry at many points. While the decline in spot refinery markets based on published quotations was not as great as the decrease in these wholesale and consumer markets, the workings of the guaranteed-margin contracts between refiner, jobber and dealer meant in many cases that the refiners absorbed all of the 1½-cent decline. There were in fact many subnormal pricing points —including some of the largest consuming centers—where competitive conditions brought price declines up to 3 cents per gallon in gasoline sales by refiners. A return to normal conditions at many of these points has been encouraging.

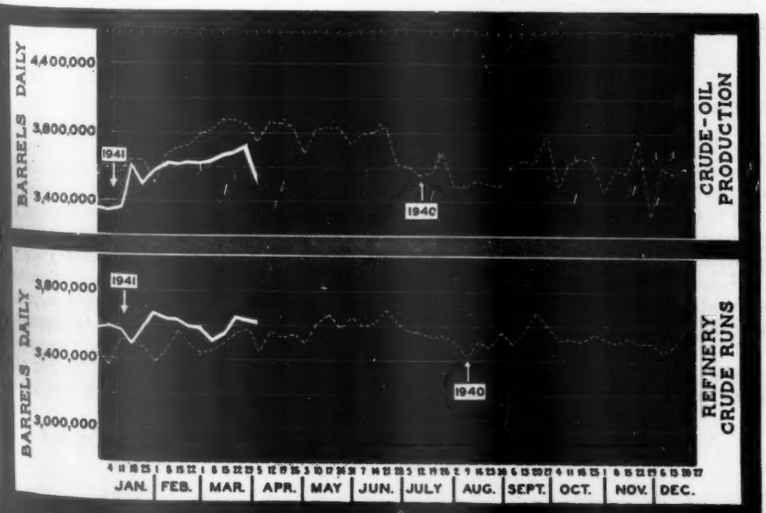
Market students who are hopeful that the next 30 days will see a return to a satisfactory relationship between crude-oil prices and refinery revenue expect additional advances in the gasoline tank-wagon quotations in the near future. These observers place special emphasis on the need of a strong gasoline market over the next few months, pointing out that this product, with a 10 per cent increase in domestic consumption, occupies the strongest position in regard to demand. A slow export demand for kerosene and distillate coupled with the fact that the domestic consuming season for burning oils is nearing a close, is offered as additional evidence that gasoline will have "to carry the load" of the refinery price improvement.

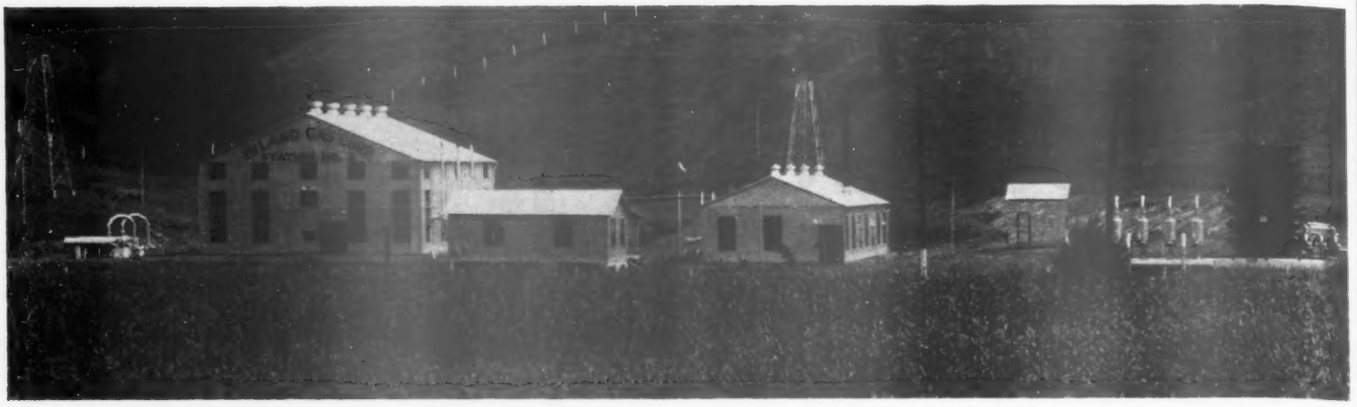
Crude price changes consisted largely in meeting the price advances inaugurated the previous week with further small increases in Illinois and Indiana. In California where the recent price changes have favored the low-gravity grades, drilling programs are underway which will increase the heavy-oil output.

DAILY AVERAGE PRODUCTION FOR WEEK

	Apr. 5, 1941	Bur. Mines Apr. est. of demand	April state allowables	Mar. 29, 1941
Arkansas	71,295	75,700	72,024	70,940
California	601,250	596,300	571,500	606,250
Eastern fields	119,100	124,400	.....	118,100
Illinois	321,000	336,000	.....	327,940
Kansas	209,850	200,700	210,700	211,650
Louisiana	305,900	299,700	300,893	306,080
North Louisiana	*70,400*	.....	.....	*70,830*
Louisiana Gulf Coast	*235,500*	.....	.....	*235,250*
Michigan	37,100	44,000	.....	37,900
Mississippi	17,225	20,300	.....	17,730
Nebraska	4,100	4,300	.....	3,950
New Mexico	110,920	109,000	110,000	110,980
Oklahoma	412,875	429,300	400,000	409,250
Rocky Mountain states	98,010	114,300	..	100,620
Texas	1,202,200	1,355,300	1,325,291	1,441,290
East Texas	*297,600*	.....	.....	*445,000*
West Texas	*208,300*	.....	.....	*241,400*
North Central Texas	*129,050*	.....	.....	*132,250*
East Central Texas	*75,550*	.....	.....	*77,895*
Texas Panhandle	*70,600*	.....	.....	*77,445*
Texas Gulf Coast	*335,900*	.....	.....	*373,800*
Southwest Texas	*85,200*	.....	.....	*93,500*
Total United States	3,510,825	3,709,300	.....	3,762,680

Total production, Jan. 1-April 5, 1941 ..... 315,865,905 bbl.
Same period last year ..... 328,319,211 bbl.





Inland Gas Co. compressor station in Floyd County, eastern Kentucky, which puts the gas into the American Rolling Mills plant at Ashland

Eastern Kentucky Active As Markets Expand

By RUTH SHELDON

The author of this article comes from the oil country. Her father, she says, showed her a wildcat well long before she saw one of the animals in a zoo. After a news writing experience, she visited Mexico in 1939. Her series of articles in The Oil and Gas Journal describing oil developments in that country following expropriation were widely commented on within and outside the industry.

Recently Miss Sheldon's articles on oil have appeared in the Saturday Evening Post. She has also written for other national magazines.

Miss Sheldon over the past year has made an exhaustive study of oil and natural-gas developments in eastern Kentucky. She gives The Journal's readers the results of this study here.

ASHLAND, Ky., Apr. 8.—The increased demand for gas and new oil reserves due to the booming of national-defense industries is causing a burst of activity in eastern Kentucky as reflected by the building of a new gas pipe line, greatly increased drilling programs of the gas companies and several wildcat tests for deep oil.

The great concentration of defense industries in the Appalachian area and along the Ohio River gives existing eastern Kentucky gas and oil production a strategic locational advantage. With eastern Kentucky gas fields already supplying a conservative estimate of 30 billion cubic feet of gas annually, the majority of which goes to the eastern markets, a 10 per cent increase is expected for this year. Last year eastern Kentucky increased by 3 billion cubic feet its sales to the eastern market due to the fact that the gas companies' drilling programs are already a year ahead of schedule.

The pressure for gas is such that, for example, Pittsburgh just called on the Kentucky-West Virginia Gas Co. to furnish 4,000,000 cu. ft. more per day in excess of the last big increase and the company is connecting wells as fast as they can be drilled in. At present 73 wells are being drilled for gas in the area, and 200 or more wells will be drilled during the remainder of the year. During the past week Kentucky-West Virginia Gas Co. put 10 more strings of tools to work, jumping from 21 strings to 31, and is making arrangements to put eight additional contractors to work. They are not only drilling in proven reserve areas, but are starting wildcats.

The steel industry's need for additional gas for use in producing defense materials is chiefly responsible for the construction by the Kentucky-West Virginia Gas Co. of a 200-mile pipe line linking eastern Kentucky gas fields with already existing pipe lines in northern West Virginia and on into Pittsburgh. This project will call for an expenditure of at least 6 million dollars.

Surveys on the pipe line have been completed and the majority of the rights-of-way have been purchased.

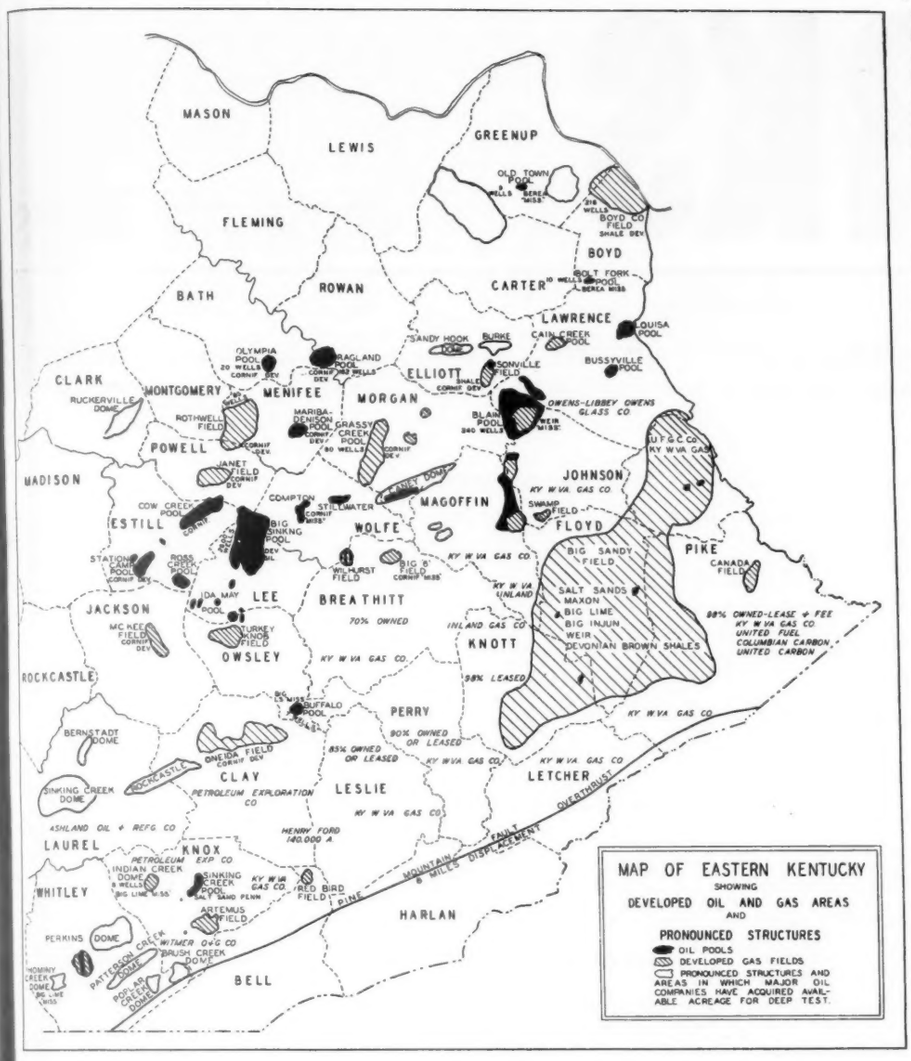
An additional impetus for increased development in eastern Kentucky is the fact that the gas supply in West Virginia is diminishing at an alarming rate. The Oriskany sand source in West Virginia, Pennsylvania and New York is showing definite signs of weakness, according to Dan J. Jones, head of the Kentucky Geological Survey. The industry is disturbed, Mr. Jones states, at indications that the Oriskany supply may be too low within 2 years to supply the vast eastern market that has relied upon it for several years. The Devonian shales source of natural gas in eastern Kentucky can be tapped quicker and at less cost than the Oriskany sands in West Virginia as depths in Kentucky range from 2,500 to 3,000 ft. as compared to West Virginia depths of 4,500 to 5,200 ft. Gas fields in eastern Kentucky have been developed in Pike, Martin, Floyd and Knott counties, but according to Mr. Jones and geologists of the various gas companies, a large supply is awaiting development in Letcher, Leslie, Bell, Knox, Jackson and Clay counties with the possibilities of discovering new large reserves.

This new demand for eastern Kentucky gas is responsible for the contemplated entry of new gas companies into the area. For the past several years the area has been controlled almost exclusively by the Kentucky-West Virginia Gas Co., Inland Gas Co., Warfield Natural Gas Co., Columbian Carbon Co., United Carbon Co., and Petroleum Exploration Co. The Kentucky-West Virginia Gas Co., under the direction of P. C. Van Gilst, vice president in charge of operations, has the largest holdings of developed and undeveloped properties in the area.

Eastern Kentucky has an exceptional record in regard to dry holes for the past year. During 1940, 117 wells were drilled in eastern Kentucky of which 5 were oil wells, 103 were gas producers and only 9 were dry holes. This is in decided contrast to western Kentucky's record for 1940 as out of 406 wells drilled there, 221 were dry or abandoned and only 173 were oil producers and 12 were gas wells.

One of the most important oil and gas developments in the past 2 years in eastern Kentucky is the acquisition by several major oil companies of considerable acreage on the possibilities of discovering production in the deeper formations.

At present eastern Kentucky oil production is being obtained from the shallow sands which have been so depleted that eastern Kentucky's approximate 5,500 bbl. daily production comes from approximately 6,500 wells. Following the finding of production in the deeper horizons in Illinois, ma-



jor-company geologists turned their attention to eastern Kentucky on the possibility of a similar situation being present there. First to enter the field was Stanolind Oil & Gas Co., which sent surface geological parties into the eastern Kentucky area and under the personal supervision of Robert Riggs, research geologist of Stanolind, Mid-Continent division, they worked out and checked in detail the entire area of eastern Kentucky, and began a leasing campaign. Stanolind was closely followed by Pure, Magnolia and Shell, so that during the past 2 years these four major companies have acquired in excess of 500,000 acres of oil and gas leases on the outstanding and most pronounced structures in the area. Other major companies have had geologists in eastern Kentucky.

In eastern Kentucky are located a dozen of the most pronounced structures on the western flank of the Appalachian geosyncline, the most important being the Paint Creek uplift in Johnson and Magoffin counties and part of Lawrence County. On this uplift are located the Laurel, Mine Fork, Win and Ivyton domes. The Laurel dome is the largest and most pronounced structure in eastern Kentucky. The Rockcastle uplift of Clay and Laurel, though not as large as the Paint Creek, is possibly second in size but more abrupt in deformation. The acreage acquired by the major companies on the whole covers the above described area.

The reason for this major-company activity is to seek production from deeper pay zones, especially those from the top of the Corniferous (Devonian series), through the Clinton (Silurian), Trenton and St. Peter (Ordovician), and into the Knox dolomite. "Only a few wells (in eastern Kentucky) have been drilled to a depth sufficient to reach the St. Peter sand and none of these on well-defined structures, but the indications in them are such as to show production possible and probable," according to a paper read before the A.I.M.E. last year by Coleman D. Hunter, chief geologist of the Kentucky-West Virginia Gas Co., Ashland, Ky.; R. E. Stouder, geologist, Louisville Gas & Electric Co., Louisville, Ky.; Iley B. Browning, geologist and operator, Ashland, Ky.; Ralph N. Thomas, geologist, Inland Gas Co., Ashland, Ky., and George M. Straughan, assistant geologist, Kentucky-West Virginia Gas Co.

There has been some controversy in regard to the existence of the St. Peter sandstone in Kentucky. Dr. Louise Barton Freeman, of the Kentucky Geological Survey, has made a thorough study of all available data in relation to the St. Peter sandstone in Kentucky and written several papers in regard to it. She concludes that the St. Peter is present in all the wells examined on the east side of the Cincinnati arch. "The pattern from the information at hand suggests an old St. Peter shore line extending across the Cincinnati arch at the northern tip of Kentucky, swinging south on the east flank and extending well up on the present crest of the Jessamine dome (just south of Lexington, Ky.)," states Dr. Freeman.

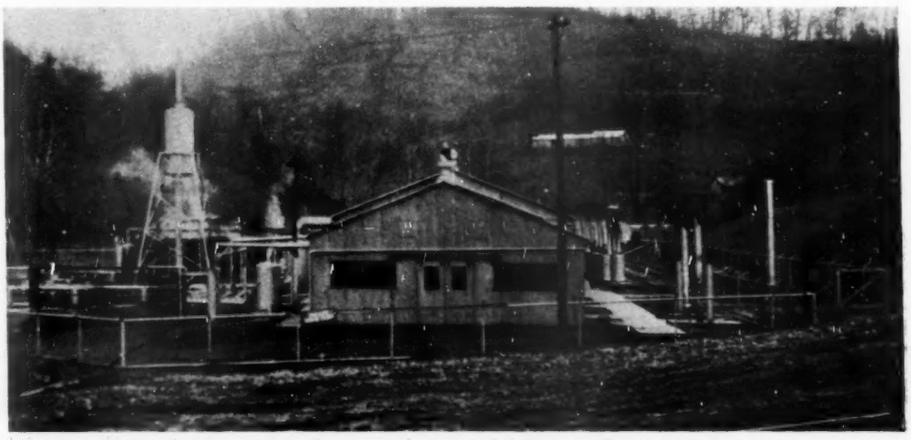
St. Peter Sand Likely

Coleman D. Hunter, chief geologist of the Kentucky-West Virginia Gas Co., who is considered an outstanding authority on eastern Kentucky, states, "The St. Peter sandstone will undoubtedly be found in northeastern Kentucky, but due to a test drilled in Knox County, Kentucky, I do not believe the St. Peter sea extended that far south in the eastern Kentucky area. The most important deep test from a geological standpoint which has been drilled in eastern Kentucky is the American Rolling Mills test in Boyd County which was drilled in the 1920's to a depth of 4,669 ft. Eighty feet of sand was recorded when the well was stopped and a show of oil was encountered, then salt water. I believe this was the St. Peter sand although I did not examine the samples, but Iley Browning, geologist of Ashland, and T. N. Patton, superintendent of the gas division of American Rolling Mills Co., were both present and believed this to be St. Peter sandstone."

In wells drilled in Leslie County shows of oil were encountered in the Devonian, Silurian and Ordovician, which latter was undoubtedly the Trenton formation. In Wolfe County a small oil well was completed in the Devonian, which undoubtedly was producing from the Trenton. These instances, according to Mr. Hunter, substantiate the statements that production is not only possible but probable in the deeper formations.

"Although a number of so-called deep tests have been drilled in eastern Kentucky," states Mr. Hunter, "the one factor of importance is that not

(Continued on Page 83)



Ashland Oil & Refining Co., pioneer repressuring plant near Martha, eastern Kentucky. The plant returns approximately 5,000,000 cu. ft. of gas daily to oil-producing sands

SPARKS . . . FROM THE NEWS

PART WAY: A half-cent advance in gasoline tank-wagon prices offsets part of last year's decline. There is still some distance to go before normal levels are reached.

DEEP DISTILLATE: Belle Isle, one of the Five Islands long a part of Gulf Coast oil and mineral lore, has been tapped for gas-distillate production from below 11,000 ft., and renewed salt-dome exploration is expected to follow.

DEFENSE UPSET: Defense preparations have put a premium on heavy crudes in California and upset the carefully worked out production ratio for various kinds of oil. Results foreshadow a tilt for dominance of the market.

THE ANSWER: The defense commission is said to be considering the construction of a pipe line extending from the Gulf Coast to New York City. If the federal Government will end the obstructive tactics of the states and competitive transportation systems the industry at its own expense will see that pipe lines are built where and when they are needed.

F.P.C. BOMB: A ruling that it has no control over the construction of new lines to areas which do not have natural gas is the latest bombshell dropped by the Federal Power Commission. It is of major significance—good or bad—to the several lines now under consideration.

CRITICAL AUDIENCE: When the Interstate Oil Compact Commission meets next Monday in New Orleans it will have the most critical audience in its history — the Cole committee.

GERMAN AIMS: The present offensive against Yugoslavia and Greece may determine whether Germany's immediate aims include the oil that fronts on the Mediterranean and Persian Gulf.

EXCUSE: In Texas the recent small advances in posted crude schedules have been seized upon as a further excuse for higher taxes. Increased rates on natural gas are also being advocated.

NO CONSERVATION: A strip 13½ ft. wide and ½ mile long in the Salem, Ill., field with 14 wells has been sold. Typical of what may happen when there are no conservation rules, the strip had 39 offsets making a total of 53 wells on 3.6 acres.

OPEN CASE: Builders of gasoline pipe lines in the Southeast supported by the defense officials are making an open case of their plans much to the embarrassment of the local obstructionists who much prefer other tactics.

WAG THE DOG: Chemists at St. Louis this week see tremendous byproduct possibilities from petroleum hydrocarbons now available. Many apparently feel that this tail of the industry in time will wag the dog.

DAKOTAS ATTRACT: Exploration in the Dakotas, started by the success in the Illinois basin, looks more and more attractive as operators check the nearness of midwestern and Canadian markets, both now underfed.

NEXT: Producers of the Southwest and Middle West have quickly grown accustomed to the first-of-the-month crude advances. They are now discussing when the next increases will materialize.

TWO-WAY IMPETUS: The need for more natural gas as well as the search for oil is the impetus back of the widening activity in eastern Kentucky.

KANSAS ACTIVITY: With allowables over 200,000 bbl. daily, Kansas operations move steadily ahead with drilling 20 per cent greater than last year.

DOUBLE-BARRELED PROJECT . . .

Two parallel lines, one for crude oil and the other for gasoline, are being constructed simultaneously by Magnolia Pipe Line Co. and Magnolia Petroleum Co. between La Gloria and Corpus Christi, Tex.

Plans for Southeastern Lines Proceed Despite Opposition

By J. P. O'DONNELL

ASSURED relief from a serious problem which the oil industry may face in the event of war would be provided by the construction of the proposed Plantation Pipe Line Co. line from Baton Rouge, La., to Greensboro, N. C., now held up by railroad opposition. This problem is that of supplying Atlantic Coast points with products from the Gulf Coast refining districts. An average of 1,200,000 bbl. of crude oil and refined products is moved daily in this route by tankers. The United States flag tanker fleet is regarded now as being in approximate balance so that if Great Britain required any more tankers or if some were to be lost as a result of actual warfare, the problem of supplying the East Coast area would become acute.

In addition to normal consumption, the immediate area which the Plantation line would serve is becoming of increasing importance from a rearmament standpoint with attendant greater oil demand. Located in that area are 30 airports and 11 camps, completed or in the process of construction. In spite of its readily apparent importance and pleas for its construction from President Roosevelt and Army and Navy officials, railroads and the Georgia Legislature have effectively blocked construction of this line as they have that of the Southeastern Pipe Line Co. from St. Joe, Fla., to Chattanooga, Tenn. All but one of the applications to 24 separate railroads for 81 crossings have been refused. Litigation to establish the company's right to cross railroad rights-of-way will be undertaken soon but even its successful completion will delay construction of the line for 6 months.

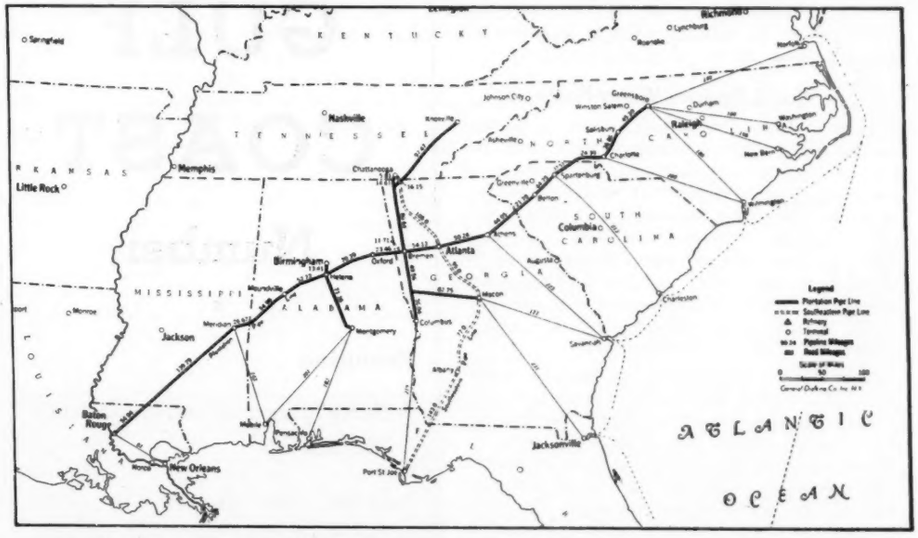
Military Supports Plan

Both the Army and Navy supported the pipeline plan following a detailed explanation of proposed system for Col. Frank Knox, secretary of navy, by R. W. Gallagher, vice president Standard Oil Co. (New Jersey), and R. T. Haslam, sales manager of the domestic operating group, and to representatives of the Army and Navy by W. R. Finney, who is in charge of the Standard Oil Co. of New Jersey pipe-line operations, and C. R. Younts, president, Plantation Pipe Line Co. This information, provided at the request of the War and Navy departments, was later supplied to the Interstate Commerce Commission. President Roosevelt entered the controversy when he wrote to Governor Talmadge of Georgia urging that the Georgia Legislature pass enabling legislation, despite the railroad opposition. The president also called the matter to the attention of Representative Lee (California), chairman of the House committee on interstate commerce. It was referred to the Cole committee and brought to the public's attention for the first time last week during that committee's hearings.

The line would be a joint project of the Standard Oil Co. of New Jersey, the Standard Oil Co. (Kentucky), and the Shell-Union Oil Corp. Its input capacity, on the basis of preliminary design, would be 48,000 bbl. per day but could be increased to 72,000 bbl. by the addition of booster stations. It is designed for the transportation of "white products," i.e., gasoline, heating oil, kerosene and tractor fuel. The products would be obtained from the 100,000-bbl. per day refinery of Standard Oil Co. of Louisiana at Baton Rouge and the 21,000-bbl. per day refinery of Shell Oil Co., Inc., at Norco, La.

Total cost of the 1,261-mile system is estimated at $15,000,000, exclusive of terminal locations. The line would extend 794 miles from Baton Rouge to Greensboro and would have 467 miles of lateral lines serving a number of other points. It would cross four states after leaving Louisiana: Mississippi, Alabama, Georgia, and South Carolina, and would enter two others, Tennessee and North Carolina. The length of the line and number of terminals in each state is shown below:

State—	Line mileage— Main	Lateral	Number of terminals
Louisiana	54.94	.....	
Mississippi	166.46	.....	1
Alabama	201.56	84.76	4
Georgia	160.13	279.75	5
Tennessee	.....	103.28	2
South Carolina	103.98	.....	2
North Carolina	106.55	.....	3
Total	793.62	467.79	17



Proposed route for new line by Plantation Pipe Line Co. which would serve seven southeastern states

Main-line terminals would be located at Meridian, Miss.; Moundville and Oxford, Ala.; Bremen, Atlanta, and Athens, Ga.; Belten and Spartanburg, S. C.; and Charlotte, Salisbury, and Greensboro, N. C. Lateral lines from Helena, Ala., would serve Birmingham and Montgomery, Ala., and similar lines from Bremen would serve Chattanooga and Knoxville, Tenn., and Columbus and Macon, Ga. The Birmingham lateral would be 13.41 miles long and that to Montgomery, 71.35 miles. From Bremen an 80.64-mile line would go north to a point in northern Georgia where a 20.42-mile branch would serve Chattanooga and a 113.62-mile branch would serve Knoxville. Another lateral would carry products to a point 49.56 miles south of Bremen from which branches would extend 82.75 miles east to Macon and 36.04 miles south to Columbus.

The system will consist of 435 miles of 11-in. line, 359 miles of 9-in., 214 miles of 6 in. and 253 miles of 4-in. The preliminary plans call for the installation of 14 pumping stations and 17 terminals. It is estimated that under normal conditions the line could be constructed in 7 to 8 months and in an emergency, 5 to 6 months after delivery of pipe.

May Extend Line to Norfolk

According to reports, it has been advocated that the line be extended to Norfolk, Va., to serve the large Army and Navy depots in that area. This is considered questionable since the Norfolk area could easily be served via inland waterways from refineries at Baltimore or by tank trucks and the several railroads from Greensboro. There are three refineries at Baltimore: Continental Oil Co., 7,500 bbl. per day; Pan-American Refining Corp., 8,000 bbl. per day; and Standard Oil Co. of New Jersey, 27,000 bbl. per day. If necessary more crude oil than the combined capacity of these three refineries could be obtained by the way of existing pipe lines with a 60-mile extension connecting them with southeastern Pennsylvania pipe-line terminals.

At present 15,000 bbl. per day of crude oil produced in inland fields is being moved to East Coast refineries by pipe line. This includes 10,000 bbl. per day of Oklahoma crude oil which is being delivered to the Gulf Oil Corp. refinery at Philadelphia and 5,000 bbl. of Illinois crude to the Standard Oil Co. of New Jersey refinery at Bayway, N. J. This crude is being moved across southern Pennsylvania through the Southern Pipe Line Co. An additional 30,000 bbl. per day could be moved to the East Coast through the National Transit, Tide Water and other pipe lines and a still

larger quantity through now idle lines.

Extension of the line to Norfolk would require the building of an additional 225 miles which, on the basis of the announced cost of the proposed line, would cost upward of $2,250,000, though this would depend on the capacity required. Since the estimated requirements of the area for this year are less than 40,000 bbl. per day, an excess of 8,000 bbl. would be immediately available for delivery to Norfolk. If delivery to intermediate terminals was suspended between 25,000 and 30,000 bbl. of light products could be transported to the northeastern terminal. The line could be used in an emergency to supply the Navy with bunker oil, but its use for this purpose would reduce its capacity of delivery 75 per cent and at the same time would make its use for other products impossible. Probably less than 9,000 bbl. of heavy fuel oil could be delivered daily due to the heavier character of this product, a highly inefficient and uneconomic operation for a line capable of handling 48,000 bbl. of lighter products.

Value of the line to the southeastern section of the country from an economic standpoint is obvious. In testimony before the Cole committee last week at Washington, D. C., Mr. Haslam pointed out that this new area supports 16,250,000 people, that in it are approximately 2,300,000 automotive vehicles consuming 47,000,000 bbl. of gasoline annually and that its 15,000 manufacturing plants produce commodities, including many essential war materials, valued at $5,300,000,000 per year. More than 35 per cent of the light-oil requirements of this area would be supplied by the pipe line.

Mr. Haslam also pointed out the importance of the area in the rearmament program, citing the number of airports and camps. In this connection he added that of the total indicated U. S. Army orders for aviation gasoline for the continental United States in 1941, 17 per cent is in the six major states to be served by the pipe line.

Would Replace Water Hauls

That it would primarily supplant barge and tanker transportation is also evident from the fact that of the total petroleum requirements of the area, 89 per cent are met wholly or in part by barge and tanker shipments and only 11 per cent by all-rail shipments. Moreover 65 per cent of the proposed line movement is now moved by tanker to Georgia, South and North Carolina and southern Virginia. It is estimated that construction of the line would release six tankers and a number of barges for other services.

There is little question of the superior safety factor of the pipe line, a highly important consideration from a military standpoint. Mr. Haslam said: "Solid welded line is buried 2 to 3 ft. underground and the surface may be replanted with vegetation indigenous to the surrounding territory. The pumping stations, which are 50 to 75 miles apart, are relatively small and may be made quite unobtrusive. Also, while the chance of a direct hit by a bomb on the pipe line is remote, in case such an accidental hit is scored the damage would be relatively slight and the line could be repaired quickly, in great contrast to all other methods of transportation."

Asked whether the line would result in price reductions to the consumer, he answered, "It undoubtedly will," and said he could not be too strong on that point.

Preliminary work on the line has been under way for a year. Further work is dependent on the ability of the company to secure rights-of-way. All states affected but Georgia and South Carolina permit the company to exercise the right of eminent domain to cross railroad rights-of-way and the necessary litigation to obtain similar rights in these states will be commenced shortly.

Sinclair Affiliate Plans Line From Marcus Hook Inland

PRELIMINARY arrangements are being made for the construction of a pipe-line system from Marcus Hook, Pa., south of Philadelphia, to the Pittsburgh area. The line will be built and operated by Union Pipe Line Co. which is affiliated with Sinclair Refining Co. Sinclair's interest has been confirmed by members of the staff of the Pennsylvania Public Utility Commission. However, no statement regarding the project has been issued by the Sinclair organization.

According to the notice given to the state commission the line will be built for the transportation of petroleum and refined products. From Marcus Hook the line will extend "in a northerly, northwesterly, and westerly direction" to the boundary line between Ohio and Pennsylvania, in Washington County, Pennsylvania. It is reported that the line is intended primarily for the transportation of gasoline and refined products.

Branch and connecting pipe lines are to extend through most of the counties in southern Pennsylvania. Application for a charter for the Union Pipe Line Co. will be made on April 14.

Sinclair Refining Co. has a refinery at Marcus Hook with a crude-oil capacity of 45,000 bbl. daily but the company has no pipe-line system in Pennsylvania. The Sinclair pipe-line system extends from the Texas Gulf Coast to East Chicago, Ind.

In the notice given of the plans of the company, the proposed system will traverse the following Pennsylvania counties: Delaware, Chester, Montgomery, Berks, Lehigh, Lancaster, Lebanon, Schuylkill, Dauphin, Northumberland, York, Perry, Cumberland, Adams, Juniata, Snyder, Franklin, Mifflin, Huntington, Fulton, Centre, Blair, Bedford, Cambria, Clearfield, Somerset, Westmoreland, Indiana, Fayette, Armstrong, Allegheny, Butler, Washington and Beaver.

NEXT WEEK

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Number

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SPECIAL FEATURE

- **The story of Spindletop, with anecdotes by those who were there**

Crude Market Still Sensitive To Buying Pressure Despite General Advances

THE crude-oil market remains dynamic and responsive to buying pressure despite the general advances throughout the fields of the Southwest, Mid-Continent, Middle West and Rocky Mountains 10 days ago.

Sohio Corp., purchasing unit of the Standard Oil Co. of Ohio, the Ohio Oil Co. and Toronto Pipe Line Co. have advanced Illinois and Indiana crude prices again this week meeting the Texas Co. rise of 7 cents in that section. Ohio Oil Co. posted $1.22 per barrel for Illinois basin crude and $1.07 for eastern Illinois and western Indiana fields, effective April 7, an advance of 2 cents over its April 1 price schedule. Sohio Corp. met the advance of 2 cents over its April 1 postings on April 10. Toronto Pipe Line Co., operating exclusively for account of British American Oil Co., and therefore not a general buyer, has announced that it will pay the higher price for Illinois crude. Other buyers in Illinois reported they would probably take similar action.

Carter Oil Co. revised its posting for the Louden field, Illinois, making the flat price $1.22 per barrel for crude run after 7 a.m., April 1.

The general crude advance, started in Texas and New Mexico by Humble Oil & Refining Co. on March 29 and extended to Oklahoma and Kansas by Stanolind Oil Purchasing Co. April 1, spread out in practically all directions. The advance of 5 cents has been applied to Louisiana, Arkansas, Colorado, Montana, Wyoming, Michigan, Kentucky and Ohio.

Details of price changes are still in formation by some of the buyers but basically the advance was 5 cents in all areas, excepting Texas and New Mexico where the average was between 6 and 7 cents because of deviations from a flat advance in the Gulf Coast, the Panhandle, in parts of West Texas and in New Mexico.

Acceptance of the higher "irregular" price in the Illinois basin is further evidence that the crude market there is continuing tight despite the increase.

Magnolia Petroleum Co. posted $1.22 for Illinois basin oil, effective April 10, and announced new prices for Louisiana areas, effective April 1. In Lockport, Cameron Meadows and West Gueydan, La., Magnolia posted a gravity table starting at 84 cents for below-18° gravity. A 2-cent differential applies up to 92 cents for 21°-21.9° gravity, 3-cent increment to $1.07 for 26°-26.9° and the scale continues at stages of 2 cents making 34° gravity and above $1.23 per barrel. For Haynesville and Cotton Valley districts, Magnolia posted 78 cents for oil below 25° gravity and the scale graduates at stages of 2 cents to $1.10 for 40° gravity and above.

Geologists Hold Most Successful Meeting in Society's History

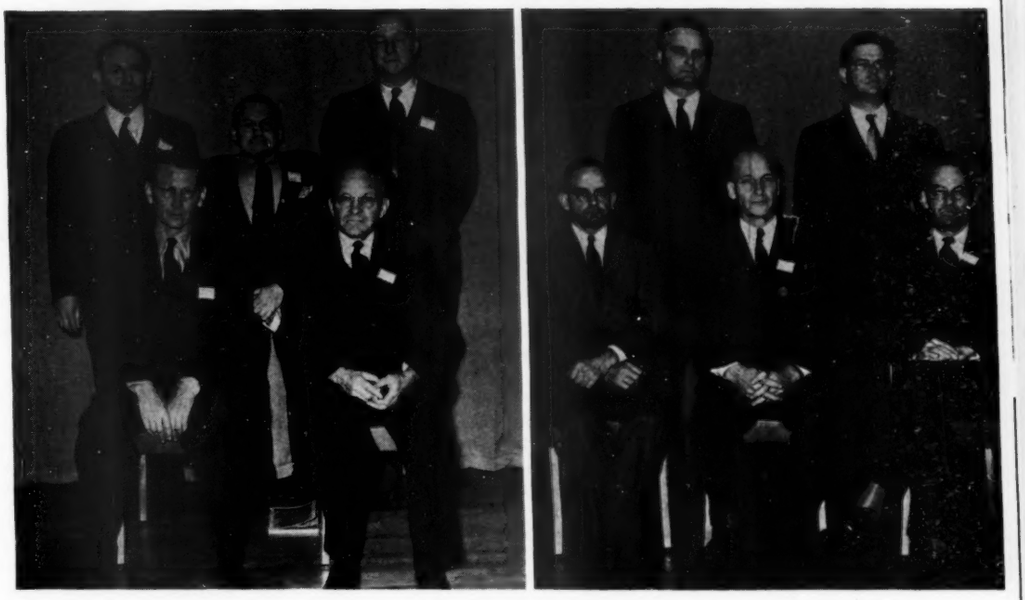
By W. V. HOWARD

HOUSTON, Tex., Apr. 5.—With total registrations amounting to over 2,800, the joint meetings of the American Association of Petroleum Geologists, the Society of Exploration Geophysicists and the Society of Economic Paleontologists held the most successful and best-attended meeting in the history of American geology.

The highlight of the meeting came on the morning of Thursday, April 3, when the ballroom of the Rice Hotel was crowded to capacity during the joint meeting of the three societies. The addresses of the presidents and those of the distinguished guests were transmitted to an overflow that thronged the mezzanine floor of the hotel.

Opening the session, Dr. L. C. Snider, president of the A.A.P.G., told of the efforts made by the association to participate in the national-defense program. The story he told was not altogether a reassuring one as he outlined the attempts of the association to cooperate with the administration on the one program that had been advanced, namely the national roster of scientific and specialized personnel. This roster was undertaken initially by the Geological Society of America and the National Research Council insofar as geologists were concerned and it was the opinion of the association that the check list did not adequately cover the manifold activities of the largest geological society in the world, the American Association of Petroleum Geologists.

The original check list was, nevertheless, sent to all members of the association as the National Research Council considered the general geological list satisfactory. It now appears necessary to ask the specialized geological and geophysical societies to appoint committees to report on the qualifications of men considered for specific positions. The preparedness program of the more academic groups also involves preparing a bibliography of articles on the role of geologists in modern warfare and the writing of articles on the same subject.



Left: Newly elected officers of the American Association of Petroleum Geologists. Seated: Ed W. Owen, San Antonio, Tex., president; L. C. Snider, Austin, Tex., retiring president. Standing: W. A. Ver Wiebe, Wichita, Kans., editor; E. O. Markham, Tulsa, secretary-treasurer, and Earle B. Noble, Los Angeles, Calif., vice president Right: Newly elected officers of the Society of Exploration Geophysicists. Seated: Frank Goldstone, Houston, Tex., vice president; H. B. Peacock, Houston, president, and W. T. Born, Tulsa, retiring president. Standing: R. D. Wyckoff, Pittsburgh, Pa., editor, and W. M. Rust, Jr., Houston, secretary-treasurer

Dr. Snider expressed a feeling of disappointment at the lack of tangible results of the program and pointed out the difficulties that arose as a result of centralization of activities in the already crowded facilities at Washington.

W. T. Born, president of the Society of Exploration Geophysicists, spoke on the future of geophysics. He considered that there are two main possibilities: either the technique of exploration must improve or expand, or the art of applying known techniques must be extended. The latter appears to provide the brighter future. The efforts of geologists and geophysicists must complement each other to a much greater extent than they do now. Mr. De Golyer's characterization of the greatest geologists as speculative geologists who dared to make generalizations on a relatively few facts needed some qualification. Such a geologist might condemn an area too soon. The best combination was an optimistic geologist and a pessimistic geophysicist who would systematically exclude from his interpretations anything that might be regarded as wishful thinking.

So far as specific methods are concerned, Mr. Born considers that seismic activity will remain at the same level with some 150 to 200 parties in the field for the next 5 years. Old areas will be resurveyed in the light of greater accuracy now obtainable and more perfect interpretation. Much seismic work will be directed towards interpreting the minor reflections afforded by stratigraphic traps.

A necessary requirement for progress is the expenditure of more time and money on experiments on the properties of the earth and vibrations transmitted through rock layers.

In Mr. Born's opinion, gravity surveys will

Front row: Robert E. Wilson, who gave one of the principal addresses; W. T. Born, retiring president, S.E.G.; E. DeGolyer, geologist, Dallas, Tex., and H. Wiess, president, Humble Oil & Refining Co., Houston, Tex. Back row: Carey Croneis, retiring president, S.E.P.M.; John Suman, vice president, Humble Oil & Refining Co., Houston; L. P. Garrett, vice president, Gulf Oil Corp., Houston; J. Edgar Pew, vice president, Sun Oil Co., Philadelphia, Pa.; A. J. Galloway, vice president, Shell Oil Co., Inc., Houston; Sumner T. Pike, commissioner S.E.C., Washington, D. C.; N. C. McGowen, president, United Gas Pipe Line Co. and Union Producing Co., Shreveport, La., and J. Sayles Leach, vice president, Texas Co., Houston (Colorgraphic Arts, Inc., Houston)

Colorgraphic Arts, Inc., Houston

View of joint meeting, American Association of Petroleum Geologists, Society of Exploration Geophysicists, and Society of Economic Paleontologists and Mineralogists, showing the overflow attendance at the session

gradually decline and there will be little change in the efficiency of electrical methods. He does not consider that there are any new methods in sight and pointed out that those in use had a long background prior to their use in oil exploration. The chief line of progress is, therefore, in developing new methods of applying old techniques.

Carey Croneis, professor of geology at the University of Chicago, and president of the Society of Economic Paleontologists and Mineralogists, traced the development of micropaleontology and its economic applications during the last 25 years. The adverse effect caused by electrical logging may be of a temporary nature. Academically, the subject's standing is better than ever as more universities are training students in it. New techniques require expansion to include the study of such forms as radiolaria, which will pass a 100-mesh screen and can be found in the finest muds. Conodonts, or worm jaws, and spores also open up fields which may be as fruitful as the more conventional study of foraminifera.

Dr. Robert E. Wilson, president of Pan-American Petroleum & Transport Co. and technical adviser on petroleum to the Office of Production Management, spoke on "Petroleum and the War." Reiterating his opinion as expressed before the Cole committee and reported in The Oil and Gas Journal last week, Dr. Wilson predicted an increase of 8 or 9 per cent in demand for petroleum products if the country was not inolved in war during the present year and an additional 5 per cent if it was.

Function of Proration

Proration has been of outstanding importance in conserving reservoir energy and was likened to the building of dams in mountain streams to prevent floods and at the same time to release the water when needed. States with conservation regulations protecting reserves will attract new industries, he said, provided the legislatures do not drive these industries out by ill-advised legislation.

Although possibilities for increasing refinery capacity are not as great as in the case of production, there is now unused refinery capacity equal to the whole refinery capacity in 1918.

Dr. Wilson referred to statements that in case of war the civilian use of gasoline would be restricted. Such statements, he said, did not take into consideration the fact that the majority of defense workers need to drive to work as other facilities are insufficient. Curtailment such as is applied in Europe was impossible and it has been found, even in Europe, to be affecting production adversely.

Capacity to produce 100-octane gasoline is double present demands, but is not enough for demands now in sight. Stocks must be built up. There is also a need for stocks of heavy crude for the Navy on the Atlantic seaboard. The most serious possible bottleneck is in transportation, particularly of gasoline to the Atlantic seaboard. Should tankers be liable to attack in coming from the Gulf, the supply might be seriously reduced. More pipe lines are essential and the efforts of the railroads to block the construction of these lines through refusal to permit the crossing of their rights-of-way is difficult to understand. So, too, is the action of the Georgia Legislature in disregarding the administration's request that construction of these lines be built without delay.

Henry V. Howe, newly elected president of the S.E.P.M.

In spite of the normal effect of storage on the industry, Dr. Wilson considers that gasoline stocks along the East Coast should be built up so as to care for possible emergencies. At the present time, he said, they are lower than at the corresponding period during the past 4 years.

Turning to the international situation, Dr. Wilson pointed out that excluding Rumania, the Axis Powers controlled 0.7 per cent of the world's oil and Rumania had an additional 2 per cent. Europe produces only about 25 per cent of her normal peacetime requirements. The peacetime requirements of the Axis Powers and the occupied territory were 400,000 bbl. daily and even if synthetic oil is considered it is doubtful if present output is more than half of that amount, including Rumanian production.

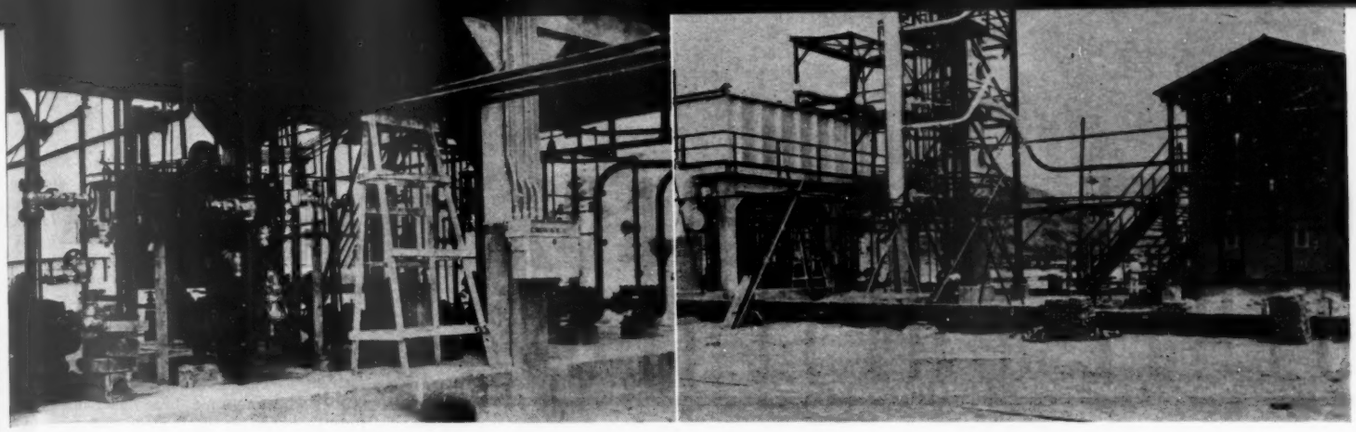
Several Bottlenecks Present

By curtailing the civilian use of petroleum products this might suffice for the military needs, but there are several bottlenecks which cannot, apparently, be overcome in connection with getting the oil where it is needed. In Rumania, before the war only 27,000 bbl. went by rail and tanker up the Danube. The construction of a 200-mile pipe line from the fields to the west of the Iron Gate would lessen the transportation difficulty but there would still be a problem. The fact that a long stretch of the Danube passes through Yugoslavia would increase the effectiveness of the bottleneck so long as that country resists Axis aggression.

Russian exports declined from 130,000 bbl. daily in 1932 to 20,000 bbl. in 1939 and the Soviets are now importing oil. The distance overland from Baku to Germany is 2,500 miles and changes in gage require transfer of oil into different cars en route. By far the best route by which Russian oil could get to Germany is by pipe line to Batum, thence by water to Constantsa and up the Danube, thus adding to the congestion at the bottleneck of the Danube.

In Dr. Wilson's opinion, the oil fields of the Near East are not an objective because so long as the Mediterranean is in British hands transportation of oil from these fields would furnish an unsolvable problem. Considering all of these factors, the amount of oil available to the Axis Powers

(Continued on Page 83)



Left: Pumping equipment for the distillation unit is placed under the condenser box. Right: View of heater, fractionating towers and cooling boxes

Small Refinery Major Factor in Peru

By J. P. O'DONNELL

CONSTRUCTION of a small refinery, highly significant from a local economic standpoint though minor from a technical or international oil one, has been completed at Zorritos, Peru. There the Departamento de Petroleo, an agency of Cuerpo Ingenieros de Minas y Aguas, is now operating a refinery of a nominal 1,000-bbl. per day capacity that will supply from 12.5 to 30 per cent of Peru's major internal oil-product requirements and thus will make the government a leading factor in domestic markets.

Principal products of the refinery will be motor fuel, kerosene and fuel oil, including diesel oil. On the basis of yields obtained on the initial run, it will be able to supply 30 per cent of Peru's motor fuel, 21 per cent of its kerosene and 12.5 per cent of the fuel-oil needs. A comparison of Peru's requirements for these products in 1939, last year for which complete data are immediately available, the estimated annual production of the refinery and the percentage of the domestic demand which the latter could supply follows:

Product—	Domestic consumption	Refinery production	Per cent of total
Motor fuel	450,000	135,000	30.0
Kerosene	200,000	42,000	21.0
Fuel oil	1,450,000	180,000	12.5
Toal	2,100,000	357,000	17.0

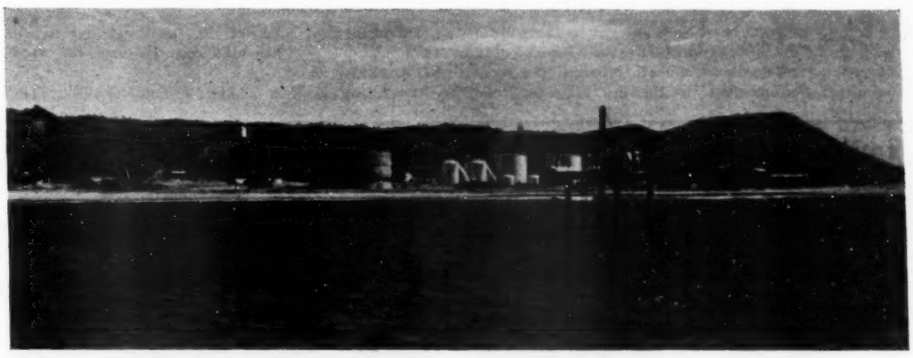
The refinery was completed and went on stream last fall. It was accepted following completion of the initial run, results of which exceeded expectations. The plant was designed by the Lummus Co. of New York. It was designed to operate to the best advantage possible on the crude charge available and at the same time to meet the economic requirements of the country. All the construction work was done by Peruvians and the refinery is operated by nationals under Alfonso Montero, refinery superintendent.

The bulk of the charging stock is a sweet, low-cold-test, 35°-40° A.P.I. gravity crude obtained from the Lobitos field. It is comparable to a Mid-Continent mixed-base crude. The balance of the charge is obtained from a government-operated field which provides 25 to 30 per cent of the total. Yields on the initial run approximated 37 per cent gasoline, 11.5 per cent kerosene, 15 per cent diesel oil, 34 per cent fuel oil and 1.5 per cent loss. Naphtha may also be produced when required. The high quality of the products, for which no subsequent treatment is required, is shown in the accompanying table of inspection data made during the first run:

	Gasoline	Kerosene	Diesel oil	Residue*
Gravity	54.1	37.4	32.4	21.6
Color	+28	+17	lt. straw	...
Doctor	Neg.	Neg.		...
I.B.P.	135	400	450	...
20 per cent	222	436	524	...
50 per cent	270	451	560	...
90 per cent	356	485	628	...
End point	394	516	656	...
Flash	...	170 (P.M.)	215 (P.M.)	370 (C.O.C.)
Carbon residue	...	...	.04	...
S.U.v./100	...	...	42	...
Pour point	...	...	...	(†)

*Percentage distilled at 650° F., 10. †Less than 40° F.

The crude is taken from Talara, the port nearest the Lobitos field, to Zorritos in shallow-draft, coastal tankers. It is delivered from the tankers to refinery storage through an 8-in. submarine line extending about a mile into the ocean. The line was required by the shallowness of the water which will not permit the docking of even the shallowest draft vessels. A flexible connection connects the submarine line with the loading platform. The "dirty" line is used for loading fuel oil as well as unloading crude. A similar 6-in. "clean" line is used for delivering gasoline, naphtha, kerosene and diesel oil from the plant to tankers for coastwise distribution. Both lines are anchored to offset the effect of tides and seasonal changes in current.



Anchorage platform for cooling-water suction line located 700 ft. offshore

Cooling is accomplished with sea water which is obtained through a 700-ft. line with its intake end far enough from shore to insure clean water. In order to keep the head down, a deep trench, averaging 16 to 18 ft. in depth, was dug for this line. In addition, the pump house, a 15 by 32-ft. structure, is set 13 ft. below grade. The temperature of the sea water is practically constant the year round at between 80° and 90° F. Except for one shell-and-tube unit, all the cooling is accomplished in submerged coils in cooling boxes. Fresh water for boiler service is obtained about 6 miles distant from the refinery and a new line was laid for this purpose.

Processing equipment is entirely conventional. The 62-ft. by 42-in. tower was shipped from this country to Peru in two sections, one of which was 42 ft. long and the other 24 ft. It was shipped as a deck load, put over the side at Zorritos and towed ashore. The pieces were joined on the ground and the tower erected as one piece. Three side-stream strippers, each 10 ft. 6 in. in height, are combined in a single 40-ft. by 20-in. stack. The furnace generates 2,500,000 B.t.u. per hour.

The 45 by 26-ft. boiler room houses two boilers, two generators and an air compressor. Both boilers are of the oil-field type and, like the furnace, are set up for oil burning. The steam-driven compressor supplies the refinery with 120-lb. per sq. in. air. Electric power is provided by a 40-kw. reciprocating-engine generator and by a 10-kw. gasoline-engine-driven emergency lighting unit. They are interconnected so that in the event of a boiler failure, the smaller unit will start up automatically to provide emergency lighting.

The water pump house contains three pumps, two centrifugal turbine-driven pumps and a reciprocating pump. The latter serves as a standby for the former and may also be used for emergency fire service.

A separator transfer pump house handles all cuts from the rundown tanks to field storage and also the pumps for the submarine lines. A gasoline-driven rotary pump is used for loading. Complete storage for a month's run, balanced out both for charging stocks and all products, has been erected.

Other equipment includes a rack for truck loading, laboratory, etc. The refinery is built on a sandy plain about 12 ft. above high water. A small community, consisting principally of homes for the employes, has sprung up near the refinery to which a good road has been constructed.

STATE CAPITALS...

TEXAS

MAY ALLOWABLES in Texas fields will be established on testimony presented before the Railroad Commission at a statewide hearing at Austin, April 14.

A FAVORABLE REPORT has been received from the Texas Senate state-affairs committee on the house bill to make the oil and gas conservation laws permanent. The committee discarded a proposed amendment to limit renewal for 2 years, a policy that has been favored by the legislature in the past.

The bill likely will be reached on the senate floor within 2 weeks.

AVERAGE DAILY ALLOWABLE production in Texas April 5 was 1,375,753 bbl., it was estimated this week by engineers of the Railroad Commission. Actual production for the week was estimated at 1,327,602 bbl. daily.

FIELD RULES REQUIRING establishment of 40-acre proration units in the Seymour field, Baylor County, Texas, have been issued by the Railroad Commission. The spacing pattern authorized is 933 ft. between wells and 330 ft. from property lines.

THE RECENT CRUDE ADVANCE was seized upon this week as an argument by legislators that the industry should be willing to accept the higher taxes proposed in the omnibus revenue bill without protest.

G. C. Morris of Greenville, Tex., author of the tax bill which has passed the house and is now pending consideration by a senate committee, contended that the higher levy could be absorbed and still leave producers a profit over previous prices.

The tax bill provides for an increase in the levy against crude production which is now 2¾ per cent of its value, if over $1 per barrel, to 4½ per cent.

Vigorous protests have been entered to the substantial increase in direct production taxes by oil men and gas producers. Speakers appearing before the senate committee in opposition to the gas taxes say they will be unjust and discriminatory; that they would close down many small operators; that gas from other states would beat down competition from Texas gas; that the industry was already carrying a heavy tax burden and that utilization of casing-head gas, which would go to waste under some conditions, should not be penalized by taxation.

Revenues would provide for expanded old-age pensions, aid to dependent children and the needy, adult blind and teachers' retirement and would increase the current severance tax to one-fourth of 1 per cent per 1,000 cu. ft. on sweet gas and one-tenth of 1 per cent on sour and casing-head gas, yielding an estimated $2,062,500 annually as compared with the present $700,000.

Other provisions would levy 0.25 cent per 1,000 cu. ft. on gas gathering and 0.1 cent a gallon on natural liquefied hydrocarbon compounds plus 0.40 cent on manufactured compounds of that type. The former was estimated to yield $2,000,000 a year and the latter $350,000.

ARKANSAS

A SPECIAL HEARING will be held April 11 in El Dorado to receive evidence regarding unitization in the Buckner field, rules for the Big Creek gas field and the Nick Springs oil field and other subjects.

FIVE SPECIFIC QUESTIONS will come before the Conservation Commission April 11 at the meeting in El Dorado, Ark. A. M. Crowell, director of conservation and production, sets forth these points for the board to consider:

Act on petition of W. M. Owen, J. W. Love and E. V. Whitwell for the integration of the NE NE 13-16s-23w, into a 40-acre drilling unit in the Buckner field of Lafayette County.

Establish field rules for the Big Creek gas field of Columbia County. The area contains one well in SE SE 4-17s-21w.

Determine whether it shall rescind its order reference, No. 38-40, issued September 25, 1940, and captioned as follows: "Order providing that no more than 40 acres shall be assigned to any one well for the purpose of allocating production to that well."

The next two orders apply to the Nick Springs field of Union County. One is to amend the original rules of September 25, 1940, and the other to check the area.

KANSAS

DEVELOPMENT PLANS for three fields and application for fluid repressuring and water flood in another will be considered April 21 by the Corporation Commission meeting in Topeka, Kans.

Cities Service Oil Co.'s plans of development in the Jordan pool of Stafford County and the Hall-Gurney, Lansing-Kansas City pool in Russell County are on the docket. The other development plan to be considered covers the Bloomer pool, Rice County, which was filed by Gulf Oil Corp., Transwestern Oil Co. and Western Petroleum Corp.

The repressuring project scheduled for hearing involves the Cities Service application for permission to use salt water in repressuring the Demel lease in the Susank pool, Barton County.

PURCHASER NOMINATIONS for 206,581 bbl. of crude daily were spread before the Kansas Corporation Commission as the basis for fixing April allowable at 210,700 bbl. daily.

Nominations by companies, follow:

Purchaser—	Barrels daily
Atlantic	1,640
Bareco	920
Bay	2,500
Champlin	*200
Cities Service	17,500
Continental	20,000
Coop. P. L. Association	2,666
Derby	7,000
El Dorado	*715
Falcon	915
Globe	3,500
H. & T. Reclaim.	1,000
Kanotex	3,500
National	2,300
Petroleum Products	1,650
Phillips	15,000
Shell	10,500
Sinclair Prairie	16,500
Skelly	18,000
Standard	35,000
Vickers	2,250
White Eagle Purc.	30,000
Miscellaneous	*2,825
Total	206,581

*Estimated.

LOUISIANA

THE DEPARTMENT OF CONSERVATION has ruled that seismograph crews operating in coastal Louisiana must retain an agent of the department with each party to insure adherence to practices preventing destruction to marine life in the state. The order originally applied to the entire state. Following a conference between department officials and oil companies the order was modified. It now applies to sections of South Louisiana, where lakes and bayous abound, and certain similar sections of North Louisiana. Shooting operations in the rest of the state are exempt from the ruling.

PENNSYLVANIA

THE SENATE HAS PASSED, 42 to 4, a bill appropriating $125,000 for the continuation of research programs in oil and for the inauguration of a long-range study of basic problems in mineral industries. The measure now goes to the house.

IDAHO

GOV. CHASE A. CLARK this week threatened to call a special session of the legislature to investigate an increase in gasoline prices. The 1-cent increase was made effective this week in several Idaho communities advancing service-station prices to 26.5, 24.5 and 22.5 cents per gallon for the three grades.

ARKANSAS COMMISSION ASSEMBLED FOR CONSERVATION HEARING

Members of the Arkansas Oil and Gas Commission are: Seated, left to right, Robert J. Short, Basil Hoag, O. C. Bailey, chairman, Ed Hollyfield, and J. D. Reynolds. Standing, left to right, R. S. Warnock, Jr., Edwin B. Keith, and A. M. Crowell, director of conservation

The OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

Published weekly by The Petroleum Publishing Company at Tulsa, Oklahoma

Via Gasoline Lines

It is little more than a decade ago that the first large-scale pipe line was announced providing for the movement of gasoline from Mid-Continent refineries to consuming points in the Middle West.

There were many who questioned the soundness of the undertaking. Difficulties, which have not materialized, were predicted. The uninformed were confident that it would prove to be a costly experiment financially.

Few among the most enthusiastic supporters of the project realized that it would be the forerunner of a revolutionary change in the industry's transportation practices, the full import of which cannot be determined at this time. Indicative of the present position of gasoline lines a nation forced to spend billions in an emergency has found that this method of transportation—handed to it on a platter—is one of its greatest defense assets.

The news developments of the past month reveal that a trend which has brought the construction of more than 8,000 miles of these gasoline lines is rapidly gaining momentum. A new line is to be built north from the Mid-Continent; three systems of that area and the Middle West are to have major extensions; the Southeast will have a second large system and another line will serve the East. Other construction plans are in the making.

Great as the growth has been over the past 10 years, it is apparent that only a start has been made in the construction of these lines for the movement of refinery products, provided the interests of the oil industry and consumers are not sacrificed through the obstructive actions of other transportation media abetted by unwise governmental regulations.

This year the production and movement of gasoline in this country will average approximately 1,800,000 bbl., or 75,000,000 gal. daily. Less than 20 per cent of this total will be transported from refineries by pipe lines.

No part of the United States has reached the saturation point in gasoline-pipe-line construction and there are large areas, including important population centers, remote from pipe-line connections at this time.

And this is not all. It has been found entirely feasible to transport other "white" products in the lines now shipping gasoline. This adds the production of kerosene and distillate, totaling approximately 165,000,000 bbl. yearly, to the potential business for pipe lines.

When it is realized that the sales of these light products in a small city of 25,000 population will average around 750 bbl. daily, it is not visionary to conceive of the eventual construction of a vast system of trunk-lines and lateral systems, connecting directly to hundreds of towns and cities and serving millions of consumers.

The opposition of the railroads, of which much has been heard in recent weeks, can be dismissed quickly. The occasional opposition from this source is as economically ridiculous as was that of the stagecoach lines to the railroads during their early development in this country. The railroads prevailed then because they did the transportation job better and cheaper.

This same rule holds in the pipe-line movement of petroleum products, with the consumer the principal beneficiary. Users of petroleum in those areas where the railroads have been successful in stopping the construction of pipe lines are paying subsidies to the rails whenever they buy gasoline. When they wake up to the fact the rail owners will discover that they won a costly and temporary victory.

So far as the petroleum industry is concerned, it should give every possible aid to the construction of these arteries of distribution which are an integral part of its operations and this period's outstanding contribution to its overall efficiency.

Greatly Extended Use of Individual Petroleum Hydrocarbons Expected

By W. T. ZIEGENHAIN

ST. LOUIS, Apr. 8.—Petroleum chemists at their twentieth annual meeting here as part of the 101st annual convention of the American Chemical Society are preparing for a rapid and substantial increase in the consumption of individual hydrocarbons found in or synthesized from crude oil and natural gas. Their ideas were most forcibly revealed by the time and attention given to the 24 papers comprising the symposium on "Analytical Methods Used in the Petroleum Industry." Here the prediction was made that certain light petroleum hydrocarbons would be favored in this expanding market as a direct result of new oil-refining processes developed to process stocks of definite characteristics in order to produce products of superior properties. The dehydrogenation of normal hydrocarbons to unsaturated straight-chain or cyclic hydrocarbons and their subsequent polymerization or reaction, to make aviation gasoline, synthetic rubber, plastics and special solvents is already a proved and commercial procedure. The application of catalysis on a broad scale in modern large-scale refining is a primary factor in this development. There is no way to tell how far the combination of physical and chemical means may be applied over the future to synthesize more hundreds of chemicals or commodities from hydrogen and carbon contained in petroleum.

Here it might be appropriate to point out that more than half a million tons of hydrogen and carbon are produced in the United States every day in the form of crude oil alone. Therefore, petroleum, whether recognized as crude oil or as natural gas, offers the lowest-cost, high-volume source of these important chemical elements and the petroleum chemist is now rapidly traveling the road toward utilizing them more freely. Examples have been given and to these might be added the preparation of synthetic toluene and glycerin as basic war materials if the United States should enter a "shooting" war.

Seek Accurate Tabulation

In the preparation for this expanded use for petroleum hydrocarbons the refinery chemists have first sought the accurate tabulation of the characteristics of every hydrocarbon contained in crude oil. They seem to have questioned every early-published datum on an individual hydrocarbon and to have sought to confirm or determine anew the characteristics of every one. Then they have sought a quick method for applying the data to current processing needs.

The determination of the heat of combustion of each hydrocarbon in the gasoline range is an example of the early work done by petroleum chemists. The results have been checked and rechecked and have been reproduced within an error range of 0.02 per cent. Here these data were reported by W. H. Jones and C. E. Starr, Jr., of the Esso Laboratories of the Standard Oil Co. of Louisiana, but they then pointed out the current need to determine the thermal properties of mixtures of hydrocarbons in the form of gasoline and to do so much more speedily than is possible by the older methods. They said that accuracies within a range of 0.02 per cent were not necessary and they described a new method which permits from six to eight determinations to be made within a single day and within a range of accuracy of plus or minus 0.2 per cent. This procedure has been found especially practicable in determining the thermal properties of aviation gasolines.

Dr. E. R. Weidlein, director of Mellon Institute of Industrial Research and chief of the Chemical Division of the Office of Production Management, speaking before the general session, said: "While the petroleum industry will be able to supply every foreseeable demand for its products in the event of a naval war in the Atlantic, there would be difficulty in supplying normal civilian requirements on the East Coast."

Refiners in the Defense Program

In commenting on the part refiners are playing in supplying war chemicals, he said: "The nation is assured of an ample supply of toluene. Several companies are proposing plants of 5 million gallons and it is estimated that 100 million gallons could be developed annually from petroleum. The Government is building a plant in Texas to make toluene from petroleum in a quantity equal to the total production now obtained from coal."

Dr. Cary Wagner, chief chemist, Pure Oil Co., and secretary, Petroleum Division, American Chemical Society

Other speakers and the subjects of their papers presented as parts of the symposium include: M. R. Lipkin and S. S. Kurtz, Jr., of the Sun Oil Co., Marcus Hook, Pa., "Temperature Coefficient of Density and Refractive Index for Hydrocarbons"; Beveridge J. Main, A. R. Glasgow, Jr., and Frederick D. Rossini, of the National Bureau of Standards, Washington, D. C., "Determination of the Freezing Point, and Estimation of the Amount of Impurity, from Time-Temperature Freezing and Melting Curves;" Prof. M. R. Fenske, of Pennsylvania State College, vice chairman of the Petroleum Division, and M. R. Cannon, "Viscosity Measurement"; H. H. Zuidema and George W. Waters, of Shell Oil Co., Inc., Wood River, Ill., "The Ring Method for the Determination of Interfacial Tension"; Richmond T. Bell and M. S. Agruss, Pure Oil Co., Chicago, "Analytical Procedure for Mixtures of Organic Sulfur Compounds"; R. F. Robey, C. E. Morrell and B. M. Vanderbilt, Standard Oil Development Co., Elizabeth, N. J., "Some Improvements in Methods for Determination of Unsaturates in Hydrocarbon Cases"; Walter J. Podbielniak, Podbielniak Centrifugal Super-Contractor Co., Chicago, "New Design Fully Adiabatic Fractionating Column and Precision Spaced Capillary Film Principle Wire Packing, for Temperature Range 180° to 300° C."

Another especially timely and interesting paper was that presented by J. J. Savilli, W. D. Segfried and B. M. Filbert, of Humble Oil & Refining Co. It discussed the various methods for analyzing mixtures of light hydrocarbons and checked the accuracy of these methods by analyzing known mixtures of pure hydrocarbons. The studies covered such well-known apparatus as (*a*) the automatically controlled Podbielniak column, (*b*) the modified California Natural Gasoline Association's column, and (*c*) a modification of the Ward apparatus for the fractionation of light hydrocarbons at reduced temperatures and pressures. In conjunction with the study of this apparatus, a dew-pressure apparatus for the determination of isobutane and normal butane in their two-component mixtures was developed. Included in the study of methods for unsaturate analysis were (*a*) the determination of total unsaturates in gaseous samples by absorption in various reagents and by the McMillan catalytic hydrogenation method, and (*b*) the determination of isobutene in gaseous samples by absorption in various reagents and by the McMillan anhydrous hydrogen chloride method.

Other Symposium Speakers

Other speakers contributing to the symposium and the subjects of their papers included E. H. McArdle and E. L. Baldeschwieler, of Standard Development Co., "Quality Tests for Petroleum Solvent Naphthas"; G. H. von Fuchs, N. B. Wilson, and K. R. Edlund, of Shell Oil Co., Inc., "The Evaluation and Performance of Turbine Oils"; G. G. Lamb, C. M. Loane, and J. W. Gaynor, of Standard Oil Co. of Indiana, Whiting, Ind., "The Indiana Stirring Oxidation Test for Lubricating Oils"; G. O. Ebrey, Mellon Institute of Industrial Research, Pittsburgh, Pa., on "Methods for Clarifying Oxidized or Used Mineral Oils and for the Determination of Sludge"; E. C. Knowles and Harry Levin, Texas Co., Beacon, N. Y., on "Determination of Wax in Asphaltic Products"; Charles J. Schlagel and Mr. Levin, of the same company, on "Consistency Test for Lubricating Greases." and C. J. Boner, of the Battenfeld Grease & Oil

(Continued on Page 26)

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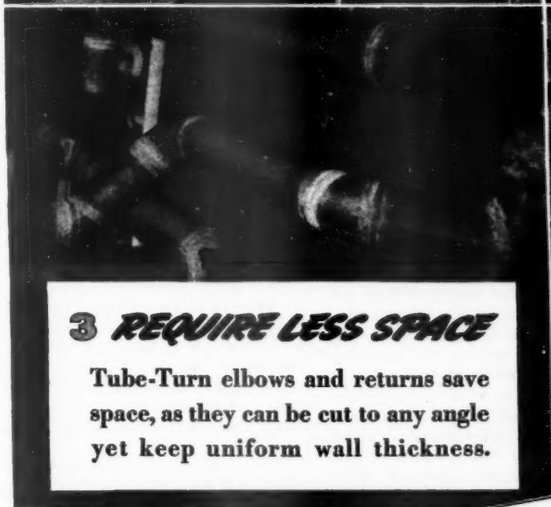

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Left: R. E. Collom, vice president, Continental Oil Co., and serving second term as president, California Oil and Gas Association. Center: F. E. Foster, managing director, California Oil and Gas Association. Right: Earl B. Gilmore, president, Gilmore Oil Co., chairman arrangements committee, annual dinner meeting of California Oil and Gas Association

Johnson Advises Oil Men to Plan Concerted Action

By L. P. STOCKMAN

LOS ANGELES, Calif., Apr. 8.—Reviving an old custom, the California Oil and Gas Association held an annual dinner meeting April 3 in the Biltmore Bowl here and extended an invitation to business men in general to attend the evening meeting to hear Gen. Hugh S. Johnson who delivered the principal address on current topics of the day with special treatment of the oil industry. Over 1,000 representatives of the oil industry and general business from Los Angeles, San Francisco and San Joaquin Valley areas listened to his address and later took part in an open forum at which questions were answered by General Johnson. The meeting was one of the most timely and appealing that the California Oil and Gas Association has presented in many years and considerable credit is due to the arrangements committee consisting of E. B. Gilmore, president of Gilmore Oil Co.; S. Belither, vice president of Shell Oil Co., Inc.; William Reinhardt, vice president of Union Pacific Railroad Co., and L. P. St. Clair, former president and chairman of the board of Union Oil Co. and currently the general administrator for the Conservation Committee of California Oil Producers, official curtailment body, and president of Independent Oil Producers Agency.

Roy E. Collom, vice president of Continental Oil Co., now serving his second term as president of California Oil and Gas Association, acted as chairman for the evening and A. L. Weil, veteran California oil man who recently retired as president of General Petroleum Corp., presided as toastmaster. General Johnson, who was in charge of activities of the N.R.A. during its existence, minced no words in his discussion of current events and some members of the present administration. His reference to the fifth New Deal which he described as remaking the world and uplifting the Chinese coolie was delivered in his typical style and climaxed with the statement that America is the sap with all the candy. He particularly warned oil men and business in general that they must be on the alert against all-out control under the guise of national emergency. He advised the industry to rise to greater heights through mutual cooperation as the oil industry is in the best position to set the precedent. He thought the oil industry in the best position to make a fight against blight of control. He suggested that industry should plan concerted action now and warned that it would be folly to be drafted. He believes that voluntary action with respect to national cooperation would be far more important than being regimented later on. He warned that although former Pres. Woodrow Wilson, immediately after the first World War, disbanded organizations and rendered inoperative many of his war powers he felt sure that the present administration would never relinquish any powers it grabbed under the guise of national emergency.

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F. P. C. Dismisses Applications For Milwaukee Pipe Lines

By PAUL REED

OF far-reaching significance for major natural-gas pipe-line construction programs planned for this year is the order issued by Federal Power Commission in regard to projects proposed for serving Milwaukee. Apparently this removes the possibility of federal interference with the construction of the first pipe line which may be built to serve the Milwaukee area, which, with the remainder of Wisconsin, is now without natural-gas connections.

The commission has dismissed, for want of jurisdiction, the applications filed by Western Natural Gas Co. (El Paso Natural Gas Co.) and by Independent Natural Gas Co. (Phillips Petroleum Co.) for certificates of public convenience and necessity authorizing the construction of natural-gas pipe lines to Milwaukee and Madison, Wis., and to other communities in the southeastern part of the state.

The plans which Independent Natural Gas Co. (Phillips) has for construction of a line from southwestern gas areas to Milwaukee have not been modified as the result of the recent F.P.C. nonjurisdiction order. However, under the most favorable conditions it is unlikely that this project would not be in a position to furnish natural gas to Milwaukee before next year. This company continues to work actively on this project.

During the time that the F.P.C. has been considering the applications of the Western and Independent companies, Natural Gas Pipeline Co. of America has taken the position that its own plans for building a lateral line to Milwaukee did not require the approval of the F.P.C. Natural Gas Pipeline participated in the F.P.C. hearings but this company was not mentioned in the recent order. However, it may be inferred that Natural Gas Pipeline does not face federal restriction of its Milwaukee project. It is now apparently affected only by local and state regulations in Wisconsin.

During this time when Wisconsin industries are operating at increased capacity because of the national-defense program, it will be advantageous to have another type of fuel such as natural gas available for industries in the state. However, certain interests have been opposing the introduction of natural gas into the state in recent months. Three bills have been introduced into the Wisconsin Legislature; two of them are obstructionist. One asks for a tax on natural gas of 7 cents per 1,000 cu. ft. The other is a bill which calls for license fees and other requirements interfering with pipe-line operation in a manner which appears to be obstructionist. A third bill was introduced early this week for the purpose of giving a state regulatory body power to regulate construction and operation of pipe lines. If this bill is passed, the state will have power to restrict pipe-line construction within its boundaries. Such regulation probably would present an obstacle to the completion of Natural Gas Pipeline's 20-in. lateral to Milwaukee, construction of which has been stopped by state authorities at the southern boundary line.

The commission stated that under Section 7c of the Natural Gas Act its jurisdiction to issue certificates of public convenience and necessity for the construction of facilities exists only when it is proposed to construct such facilities for the transportation of natural gas to a market in which natural gas is already being served by another natural-gas company and that the communities proposed to be served by the applicants (Western and Independent) do not constitute such a market.

Extensive public hearings were held on the applications at Madison, Wis., and both the state Corporation Commission of Kansas and the Public Service Commission of Wisconsin participated in the hearings jointly with the commission's trial examiner. The cities of Milwaukee and Madison and the Natural Gas Pipeline Co. of America appeared at the hearings as interveners.

Western Natural Gas Co. asked for a certificate to construct a pipe line about 800 miles in length from the Hugoton field in Kansas to Milwaukee, at an estimated cost of $25,208,154, and the Independent Natural Gas Co. to construct a line from the Texas Panhandle to Milwaukee, at an estimated cost of $28,698,000.

The decision of the F.P.C. is being interpreted to mean that any pipe-line organization can build a gas line into a territory, not already served with natural gas, without obtaining a certificate from the F.P.C. The first pipe-line system to serve a territory has a prior claim on the market. In addition to leaving the way clear for Natural Gas Pipeline Co. of America to proceed to Milwaukee, the order appears to set a precedent which will be favorable to the proposed project of Reserve Gas Pipe Line Co. to lay 1,500 miles of 24-in. from the Texas Gulf Coast to New York City as well as to the proposed project of Tennessee Gas & Transmission Co. to lay a 400-mile line from North Louisiana to North Carolina. After a natural-gas system is once established in new territory, the F.P.C. will have jurisdiction over lines proposed at later times which would compete with it. The precedent set by the order will probably have the effect of stimulating natural-gas line construction in the immediate future. It has also been pointed out that this precedent will also have the effect of giving support to the F.P.C.'s request in its annual report for more authority over new natural-gas pipe lines.

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Early Compromise Only Hope For Illinois Control Bill

SPRINGFIELD, Ill., Apr. 8.—Unless a compromise agreement is reached before May 1, state regulation and taxation of the Illinois oil industry—a storm cloud on the state's political horizon for more than 4 years—will suffer the same fate accorded three previous attempts to govern the industry by means of home-rule legislation.

During recent months, representatives of the industry have sought to translate Gov. Dwight H. Green's inaugural interest in conservation of natural resources into a specific item on the legislative calendar.

Frequent conferences dealing with the oil question have been held with Governor Green, his administrative assistant, Gilbert Keebler, various leaders of the industry, and a small group of legislators. The governor admitted he is considering endorsement of a "home-rule" bill together with a tax proposal calling for a 3.33 per cent levy on the state's oil production. Last week the governor named Clarence T. Smith, Flora attorney, as Illinois' representative on the Interstate Oil Compact Commission. Mr. Smith's appointment has been regarded as a trial balloon to test "conservation sentiment." Notwithstanding popular approval of the latter's selection, the move resulted in a serious effort by independent operators to determine precise features of the bill.

On April 4 initial opposition developed in Fairfield, Ill., at an informal meeting of operators and other representatives of the industry. Mr. Smith spoke at the session, and asked for an expression of views after describing the projected measure.

Former Gov. John Stelle, who attended the meeting, went on record as opposed to proration, a stand he has taken consistently since new development began in Illinois in 1937. Forces marshaling for battle against ratable taking and other restrictive portions of the bill are organizing again under the aegis of the Illinois Oil Producers Equity Association, headed by George Harsh, and Dorsey Hager, consulting geologist.

Hager Favors Proposal

Mr. Hager, who has acted as a mouthpiece for the independent group in the past, is reported to favor the governor's tax proposal and to oppose the 40-bbl. per well minimum provision of the new bill. On the other hand, independents charge major firms with using the tax feature as a "club" to force them into line in support of the entire bill.

The bill provides for a three-man commission with salaries of $6,000 each per year. Pool production would be limited to one sand well on a 20-acre tract and one lime well on 40-acre tracts. Penalties are provided for illegal production, and there are clauses governing judicial review of disputed cases. Another section of the bill deals with waste, with special attention to underground and surface losses.

Sponsors propose to regulate production "whenever waste occurs." Major operators, who control more than three-fourths of the state's total production today, have told the governor that from 25,000,000 to 40,000,000 bbl. have been wasted during the past 4 years as the result of premature escape of gas in producing operations. He has also been advised that repressuring, a practice now pursued by Carter in the Louden field and by Texas Co. to a limited extent in the Salem pool, would have laid the groundwork for commercial use of gas throughout the oil basin.

Major operators contend production as to pools in the state should be limited to current market demand. At the present time they point to a daily demand of approximately 340,000 bbl. by buyers compared with an output under 320,000 bbl.

The 40-bbl. minimum today would affect approximately 500 wells yielding that amount or more. Large operators admit that several hundred additional wells could exceed that limit if pressed into service.

Mr. Keebler, one of Governor Green's closest advisers, and other administration aides have reportedly been impressed by logic of major firms. As this analysis is being written, large companies which favor controlled production dominate slightly more than 79 per cent of the state's total yield. The breakdown follows: Texas, 30; Carter, 19; Pure, 11; Magnolia, 6; Ohio, 5; Shell, 4; Gulf and Sinclair interests, 2 each; and Adams, 1.5 per cent. Principal independents and firms with slightly more than 1 per cent of production include W. C. McBride, Kingwood, Continental, Tide Water, Arthur (Tex) Harvey, and Superior.

If a compromise is effected within the next few weeks, it will be hastened by a common desire of both factions to solidify their ranks in the face of threatened federal control. Both major and independent operators concur generally in the opinion that the Cole bill or a similar measure with control centered in Washington would hamper future development.

Governor Green's insistence on an oil tax as part of his avowed program to reduce the state occupational or "sales" tax from 3 to 2 per cent is also expected to become stronger as the deadline approaches. His aides estimate the tax will yield from $3,500,000 to $4,000,000 annually. One-third of 1 per cent of tax revenue would be used for administrative costs.

Gilbert Keebler, administrative assistant to Gov. Dwight H. Green, in dealing with plans for oil legislation

Speed Record Set in Placing Atlantic's Tanker in Service

HARBOR ISLAND, Tex., Apr. 8.—A new record in constructing and outfitting an oil tanker for full-scale service was established here today with arrival of Atlantic Refining Co.'s S.S. E. H. Blum which docked at this port to load her first cargo.

The latest addition to the high-speed tanker fleet cleared from the yard of the Sun Shipbuilding & Dry Dock Co. April 2, just 1 day less than 6 months after her keel was laid there last October 3.

An official of Sun Shipbuilding said this was a record for an all-welded ship of its size. The speed with which the big vessel was built and outfitted reflects the way in which construction work in American shipyards has been speeded up by the national emergency, it was pointed out.

Buttram and Brown Lodge Import Protest With Hull

WASHINGTON, D. C., Apr. 7.—Protests against the recent heavy importations of foreign oil, particularly from Venezuela, have been made to the State Department by Frank Buttram, president, and Russell Brown, general counsel, of the Independent Petroleum Association of America, and Rep. Wesley E. Disney of Oklahoma.

Meeting personally with Secretary Hull they pointed out that 1940 imports ran nearly double those of 1939 and are currently around 415,000 bbl. per day, about equal to production of Oklahoma. Secretary Hull promised to give the matter full consideration but did not promise that any action will be taken to revise the Venezuela trade agreement.

Guide Developed to Ease Work of Correcting Runs

Ralph Claiborne, Tulsa, accountant in the oil and gas department of Mid-Continent Petroleum Corp., has invented a slotted guide for making volume and temperature corrections from consolidated tables.

The guide is placed on the table and slid into position so that the desired per cent figure on the guide is directly over its corresponding degree on the table. The correction factor then appears through the extreme right hand slot, blotting out intervening rows of figures. Use of correction factors is now extensive in computing run tickets since all purchasers in the Mid-Continent are on 100 per cent tables.

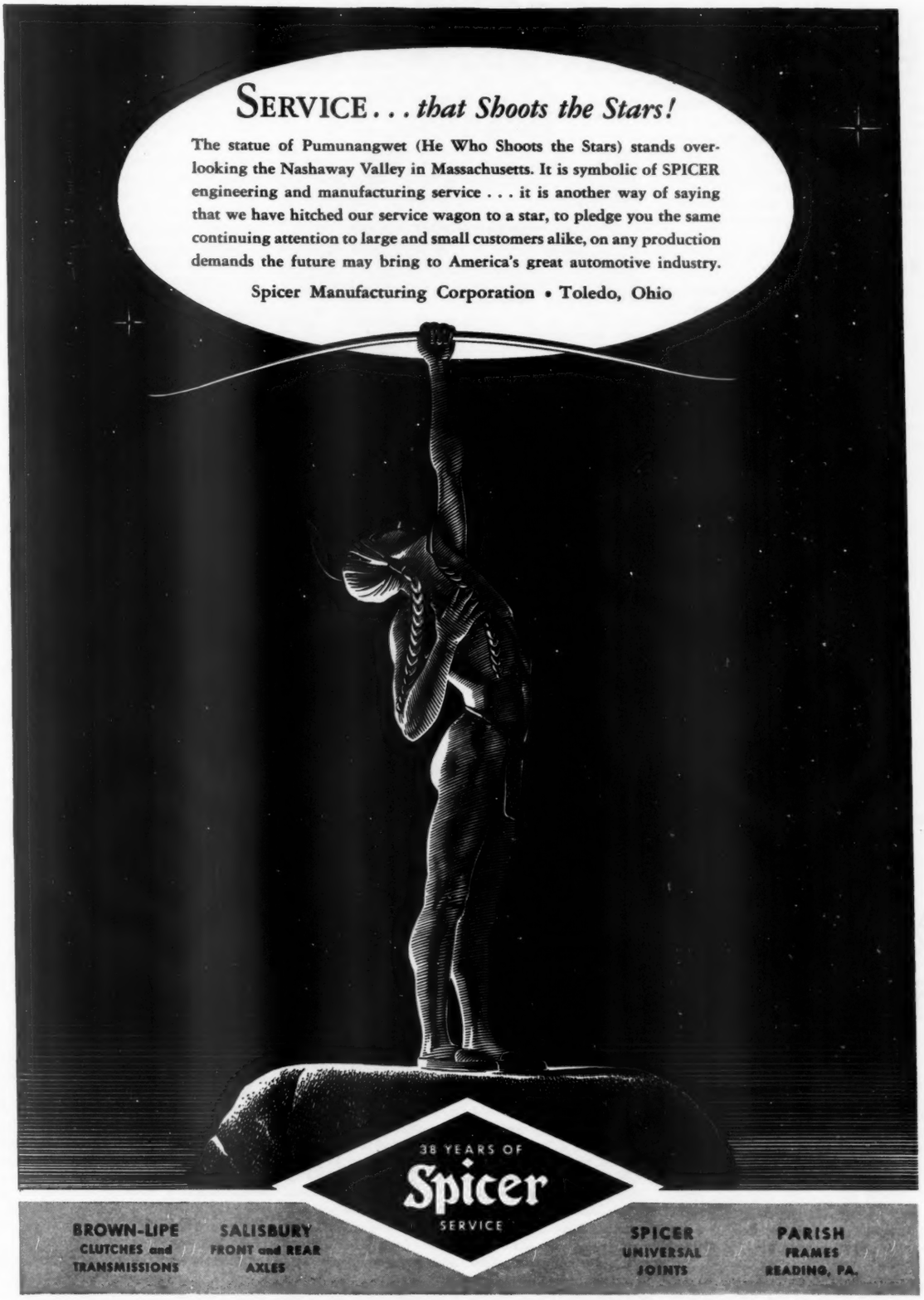
Oil Compact Body Meets With Cole Committee

NEW ORLEANS, La., Apr. 8.—Text of the oil-compact agreement which will be submitted to the states for execution and to Congress for approval will be decided at the meeting of the commission here April 14.

Members of the Cole committee have accepted an invitation to attend the meeting of the commission in New Orleans which will be held in the Monteleone Hotel. The Cole committee has planned a tour of inspection through Louisiana, Texas and Arkansas as the final step in completing its investigation of the petroleum industry before submitting its report to Congress in May.

The engineering and regulatory-practices committees of the compact commission will make reports on their work and other phases of the program are being designed to review progress of the conservation program.

The commission was invited to meet in Louisiana by Gov. Sam Jones who is now considering execution of previously granted authority to make his state a participant in the compact. Gov. Leon Phillips of Oklahoma, chairman, accepted the Louisiana invitation and issued the meeting call from Oklahoma City, Okla., last week.


SERVICE . . . that Shoots the Stars!
The statue of Pumunangwet (He Who Shoots the Stars) stands overlooking the Nashaway Valley in Massachusetts. It is symbolic of SPICER engineering and manufacturing service . . . it is another way of saying that we have hitched our service wagon to a star, to pledge you the same continuing attention to large and small customers alike, on any production demands the future may bring to America's great automotive industry.
Spicer Manufacturing Corporation • Toledo, Ohio
38 YEARS OF
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SERVICE
BROWN-LIPE
CLUTCHES and
TRANSMISSIONS
SALISBURY
FRONT and REAR
AXLES
SPICER
UNIVERSAL
JOINTS
PARISH
FRAMES
READING, PA.

The Annual Statements Say . . .

Pure Oil Co.

FIRST units are under construction on a fleet to transport relatively large volumes of products from the company's Smiths Bluff, Tex., refinery to points on the Mississippi and Ohio rivers. The barges may be operated as far north as Minneapolis, Minn.

There has been completed or is in process of construction equipment which utilizes both the thermal and catalytic polymerization processes. The outstanding addition to crude reserves came through completion of 19 producing wells in the Cumberland field of southeastern Oklahoma where the company owns a block of 22,000 acres surrounding the pool.

Tide Water Associated Oil Co.

IMPROVED products and reduced operating costs are expected to pay for the company's new catalytic cracking plant using the Houdry process in about 4 years. Operation of the plant at Bayonne, N. J., is scheduled to start in June. Expenditures on manufacturing equipment last year totaled $8,180,368. A simple tabulation of operations is included in the report giving a brief synopsis of last year's results compared to 1939. A more detailed breakdown by departments amplifies the salient points. One reflection of operating conditions is shown in tabulation of refinery data. These show an increase in crude runs from 40,821,557 bbl. in 1939 to 42,567,177 bbl. last year. Gasoline production last year declined almost 1,000,000 bbl. but yield of lubricants was up 369,189 bbl. while output of fuel oils and other products increased 2,262,111 bbl., reflecting the trend over part of the year to depress motor-fuel output and boost manufacture of burning products.

Ashland Oil & Refining Co.

EXPENDITURES for improvement of facilities during the year totaled $1,040,331. Additional facilities now under construction, or proposed, include an increase of approximately 20 per cent in refining capacity, a new towboat in addition to one under construction, three new oil barges and the completion of a river-rail terminal in the Pittsburgh, Pa., district. Pipe lines of the company gathered 14,000 bbl. daily and refinery requirements were about 10,000 bbl., leaving a surplus of 4,000 which was sold to other refiners.

Barnsdall Oil Co.

LIMITATION of operations to the development and production of crude oil has placed the company in position to show decided improvements in results. Divorcement from marketing and refining operations was accomplished by reducing the company's interest in Bareco Oil Co. to 49 per cent of the stock. Between January 5 and December 6, 1940, when Barnsdall owned 87 per cent of Bareco, the loss represented by that share of ownership totaled $561,719.02. The report contains a table showing the company's producing wells and acreage by states.

OIL-COMPANY ANNUAL REPORTS

(Compiled by Carl H. Pforzheimer & Co., New York)

	Net income	Earned per share
Texas Corp.:		
1940	$31,547,662	$2.90
1939	32,886,807	3.02
Ohio Oil Co.:		
1940	8,733,164	1.02
1939	1,492,086	—0.10
Texas Pacific Coal & Oil:		
1940	479,815	0.54
1939	889,238	1.00
Sunray Oil Corp.:		
1940	527,910	0.25
1939	605,551	0.23
Transwestern Oil:		
1940	—439,149	—0.59
1939	—1,064,595	—1.42
Midwest Oil Co.:		
1940	882,294	0.88
1939	990,281	0.99
Seaboard Oil Co.:		
1940	1,300,993	1.05
1939	1,746,464	1.40
Pan American Pet. & Transport:		
1940	5,626,083	1.20
1939	5,188,825	1.10
Standard Oil of Indiana:		
1940	33,597,342	2.20
1939	34,152,642	2.23
Barnsdall Oil Co.:		
1940	2,193,471	0.97
1939	1,720,292	0.76
Continental Oil Co.:		
1940	4,317,657	0.92
1939	6,328,078	1.35
Tide Water Associated Oil Co.:		
1940	9,519,083	1.14
1939	8,958,971	1.05
Shell Union Oil Co.:		
1940	15,654,678	1.05
1939	11,805,713	0.76
Standard Oil Co. of California:		
1940	22,487,586	1.73
1939	17,882,505	1.38
Total 30 companies*:		
1940	$193,648,002	
1939	177,861,635	

*Including companies previously reported. —Deficit.

Benefits of Secondary Recovery Cited to Pennsylvania Group

By A. C. MacINTYRE

AT a meeting held March 31, of producers in the Pennsylvania Grade region, on the possibilities of secondary recovery in the southern end of the region, Dr. Parke A. Dickey, state oil and gas geologist of the Pennsylvania Topographic and Geologic Survey, deplored the abandoning of wells after natural production had dropped, fearing that those wells and pools abandoned were lost. This loss of reserves, he said, was to be regretted in view of the search now being made by oil men in other sections of the region for new sources of oil.

At the outset of his talk, Dr. Dickey pointed out that producers in the old fields of the Pennsylvania region had increased their production many fold by use of secondary-recovery methods. If the Venango County operators had not turned to air drive, production there would be sharply curtailed and many of them would be pulling out their leases.

Provided present markets can be kept there should be an increased demand for crude from the southwestern districts, he said, when the Bradford field production declines as it should in not too many years if drilling there proceeds at its present rate. Such a condition may bring about higher prices for crude.

Wells, and even pools, in the southwestern Pennsylvania district are being abandoned as unprofitable to operate at present prices and it is likely that once abandoned it will never be profitable to redrill, especially as there is great danger they will be flooded with water.

He held that abandonment is unfortunate since there is strong reason to believe that many of the pools could be operated profitably at the present crude price if more modern practices were used.

He cited some operations in Allegheny and Washington counties which indicated that in some cases air and gas drives are more effective than in the Venango fields. Repressuring has brought good returns at several places in Beaver and Lawrence counties and in West Virginia and Ohio. In some Gordon sand districts, however, the wells were not spaced close enough. The sands lie at depths which deter further drilling.

He showed several slides revealing the increase of production with use of secondary-recovery methods. Production in one case was in excess of natural production by nearly 300,000 bbl. or about 1,000 bbl. an acre. In another case about 560 acres produced about 110,000 bbl. more than would have been produced naturally.

Oil recoveries as great as those shown—about 1,000 bbl. an acre—have been obtained in the Venango fields when the wells were spaced 200 to 250 ft. apart with every third well a pressure well. In the cases cited there were one-fifth to one-tenth as many wells per acre as in the Venango cases and only every sixth or seventh well was a pressure well. Either, Dr. Dickey said, the southwestern sands are much richer or certain of them are exceptionally favorable to oil or gas drive.

Asking why secondary recovery has not been more extensively applied in the southwestern fields, Dr. Dickey said the stock answer—that price of crude does not warrant expense of new equipment—may be seriously questioned. In the experiments cited, he said, very little was spent for new equipment and none for new wells. The problem is to produce oil profitably at the present price but it cannot be done by methods developed and used 50 years ago.

Turning to the factors that go to make up successful secondary recovery, Dr. Dickey said they were numerous, but two of the most important are a knowledge of the sand conditions and the intensive mode of attack. He said it was necessary to know if there was enough oil in the sand to repay the needed investment in installing pressure and whether the sand will respond to repressuring. In the northern fields, he said, attempts were made on leases which were never much good and while production was increased there was not enough recoverable oil to pay out. In other cases the sand was rich enough but it was too impermeable to take pressures which were economically feasible. In others alternating loose and tight beds resulted in severe bypassing, unless controlled by multiple packers. The advantage of knowing these things is well worth the cost of coring a new well, but one or two cores are not enough since bypassing is frequently directional.

Sands differ greatly in their shape and character, but in the Pennsylvania fields many of them consist of long, parallel bars, like sand bars along the seacoast. These generally trend in a northeast-southwest direction. As the gas is likely to follow these trends, a pressure well in an open streak cannot affect an oil well in a hard streak. In the streaked pools of northwestern Pennsylvania the open streaks are marked by thicker sand. It is possible to plot sand thickness, which will show the location and direction of the open streaks. Invariably the thick streaks are the open ones and the thin streaks had poorer wells and tighter sands as shown by the cores. He suggested that operators considering pressure should procure such a map.

In southwestern Pennsylvania the structure or dip of the sand is important. The pool may have a gas updip where the gas may simply work up to the gas cap without doing much good.

Another important factor, Dr. Dickey said, is the volume produced per well or per acre. Use of pressure in a haphazard manner might lift production but unless it increases 50 or 100 bbl. or more per day the venture would be unprofitable. The profitable leases in the northern field are those on which the wells are spaced closely and there is one pressure well for every two producing wells. The investment cost per acre is higher but the production per well is many times greater. Greater production in a shorter period would justify a large investment, he said, pointing to the cost of pumping, etc., over a longer period. Intensive attack, there is reason to believe, recovers more oil than scattered attack.

Greater depth of pay sands in southwestern Pennsylvania increases drilling costs and may prevent closer spacing, yet the important thing is the amount of oil to be recovered. He felt it would be advisable to drill a few new wells on any project if only to fill in some sort of pattern among the irregularly spaced wells.

"For the general welfare of the state, the industry and our own personal benefit," he said, "we must keep up the supply of Pennsylvania Grade crude oil."

Cole Committee Hear Testimony On Need for Pipe Lines

By HENRY D. RALPH

WASHINGTON, D. C., Apr. 7.—Almost 2 years of hearings on various aspects of the petroleum industry, including federal control, relationship to national defense, and pipe-line construction, came to a close last week as the Cole subcommittee of the House committee on interstate and foreign commerce concluded its final session with testimony on the necessity for two southeastern pipe lines.

Chairman Cole announced that the committee will make a tour through the Southeast to study the oil and pipe-line situation, in preparation for the filing of a final report May 1. The committee will visit the Interstate Oil Compact Commission meeting in New Orleans on April 15 and 16, and will inspect petroleum facilities in other states on the way.

The last set of hearings this past week heard the pros and cons of the gasoline pipe-line question in the southeastern states. Pipe-line spokesmen maintained the lines would aid the national defense, principally by displacing tankers needed elsewhere. Railroads claimed the lines served no useful purpose, because the rails could adequately handle all petroleum traffic in that area.

The pipe-line problem was presented to the committee when the Georgia courts and legislature recently denied the companies the right to condemn railroad rights-of-way blocking the path of the lines.

First witness was R. T. Haslam, vice president and general sales manager of the Standard Oil Co. of New Jersey, as well as an official of Standard of Louisiana. The Plantation pipe line, extending from Baton Rouge, La., to Greensboro, N. C., he told the committee, would "assure a dependable source of petroleum products to the southeastern area in the event there should develop an interruption in ocean-tanker movement to Atlantic seaboard ports." An article on this pipe line is presented elsewhere in this issue.

B. B. Howard, vice president and general manager of Standard of New Jersey, marine department, took the stand briefly at the request of Chairman Cole to explain the mechanics of tanker construction and operation. He said tankers are in great demand along all coasts, and that all available tankers are in operation along the Atlantic seaboard.

States Southeastern's Case

The representative of the Southeastern Pipe Line Co., A. S. Clay, Atlanta attorney, stated the case for the line from Port St. Joe, Fla., to Chattanooga, Tenn., of which 100 miles has already been built to Bainbridge, Ga.

The Southeastern line, he revealed, is completed with the exception of a number of gaps resulting from the refusal of the Georgia Legislature to permit building across railroad rights-of-way. The distance involved in these gaps is about 30 miles, and to complete the line it will be necessary to cross 23 railroads and 100 public roads.

"It seems clear," he said, "that the completion of this pipe line is essential to the national-defense program. Southeastern Pipe Line Co. is able and willing to complete it and to operate it without public subsidy or grant or any other outside financial assistance. Once the necessary rights-of-way have been secured, the line can be completed and put into operation in a very short time."

Under sharp questioning by Representatives Cole and Lea, Mr. Clay admitted that the original purpose of the line had been for commercial reasons, and not for national defense.

R. T. Haslam, vice president and general sales manager, Standard Oil Co. of New Jersey, testifies as to necessity for Baton Rouge-to-Greensboro pipe line

Frank Buttram, president of the Independent Petroleum Association of America, answered a previous request made by Chairman Cole, and in a short statement discussed the implications of the recent action of Kansas and Oklahoma purchasing companies in adopting 100 per cent tank tables for buying crude oil.

Opposition Presents Case

Opposite side of the pipe-line case was presented by W. L. Stanley, vice president of the Seaboard Air Line Railway Co. He introduced statements from military and naval authorities denying that the lines were needed for national defense. A communication from the Quartermaster General's office in the War Department, dated October 3, 1940, stated: "This office is not interested in the establishment of pipe lines." A letter from Rear Adm. H. R. Stuart, director of naval petroleum reserves, dated January 24, 1941, read: "Replying to your question whether I look upon such a pipe line as a 'vital and necessary adjunct to our national-defense program so far as the Navy Department is concerned,' my answer is no." Last week a military official testified that from a military viewpoint the Army was not interested in the pipe-line question, but Admiral Stuart declared the lines were desirable for the national defense. Chairman Cole appeared interested in these statements, but he emphasized that the secretaries of war, navy and interior, and President Roosevelt have come out in favor of the two lines.

Mr. Stanley pointed out the projects were purely commercial ventures whose sponsors discovered they could benefit the national defense only when railroad rights-of-way were denied them. In a lengthy statement he stressed the adverse effect of the pipe lines on the southeastern railroads, adding, "The transportation facilities now existing . . . are not only capable of taking care of all normal demands, but also any increased demands."

He disputed the pipe-line companies' contention of price reductions to consumers. Quoting statements of pipe-line officials and giving figures on petroleum costs and prices in parts of Georgia, Mr. Stanley declared that the pipe-line companies absorb profits caused by lower rates and do not pass the benefits on to the consumer.

Representative Lea referred to the additional burden on the steel industry of the steel required for the construction of the lines, and said that would be a consideration in the committee's final determination.

Questioned on Administration's Support

Representative Cole asked the next witness, H. A. Simms, traffic manager of the small Atlanta-St. Andrew's Bay Railroad, what he thought of the administration's support of the lines. Mr. Simms answered that the government officials misunderstood the situation because of inaccurate information supplied by their subordinates. Chairman Cole then said that "one side errs as much as the other" in giving inaccurate information.

A. B. Conger, attorney for the Seaboard Railway, insisted Congress should not give private corporations the power of condemnation, and asked the committee to advise Congress not to act against the expressed wishes of the State of Georgia. He held an extended discussion with Chairman Cole on the legal precedents involved in the right of condemnation.

Final witness was J. G. Lehrsen, executive secretary of the Railway Labor Executives Association. In a short presentation he repeated many of the arguments made by the railroad men, and said much unemployment would result if the lines were built.

In a rebuttal statement filed with the committee Mr. Haslam disputed the contention of the railroads that pipe-line construction does not lower prices to consumers, and submitted statistical tables and charts showing that pipe lines have reduced prices in many representative localities which they serve. In answer to railroad contentions that defense orders would prevent steel mills from furnishing pipe for new construction, Mr. Haslam stated that only a negligible amount of pipe is needed to complete the Southeastern line and that pipe for the Plantation line will be manufactured by a special type of mill having no other use. The mill has stated that it can supply the 100,000 tons of pipe required, he said.

Extended Use of Individual Hydrocarbons Expected

(Continued from Page 18)

Corp., Kansas City, on "Determination of Free Fatty Acids in Aluminum Soap."

A group of analytical procedures for the determination of nonpetroleum constituents was described by R. J. DeGray, E. P. Rittershausen and W. E. Price, of the Paulsboro, N. J., laboratories of Socony-Vacuum Oil Co., Inc. These included procedures for the separation of cobalt from iron, the colorimetric determination of iron, cobalt, lead and sulfates, the extraction of metallic constituents from oil. This series of papers also included a brief description of a newly developed commercial-laboratory filtration cylinder.

At the general meeting, following this symposium, some subjects of interest to men outside the oil-refining division were discussed. The authors and their subjects were: Leo Horvitz, of Subterrex, Houston, Tex., "Chemistry in Exploration for Petroleum"; Paul G. Exline, Gulf Research & Development Co., Pittsburgh, Pa., and W. E. Kramer and John R. Bowman, Mellon Institute, "Study of Oil Oxidation as Related to Lubrication"; H. H. Gross and H. S. Smith, Texas Co., "Improved Fractional Extraction of Lubricating-Oil Stocks"; E. W. Comings and R. S. Egly, University of Illinois, "Viscosity of Ethylene and of Carbon Dioxide Under Pressure"; C. M. Thacker, H. O. Folkins and E. L. Miller, Pure Oil Co., "Free Energies of Formation of Gaseous Hydrocarbons and Related Substances at 298.1° to 1,200° K."; Leslie M. Schenck and J. R. Bailey, of University of Texas, "Isolation of Five New Bases From California Petroleum and Their Synthesis"; William O. Ney, W. A. Quebedeaux, and H. L. Lochte, University of Texas, "California Petroleum Acids"; Arthur Rose, Pennsylvania State College, "Simple Methods for Calculation of Theoretical Plates Required for Separation of Two Normal Liquids by Batch Fractionation"; W. B. Kay, Standard Oil Co. of Indiana, "Liquid-Vapor Equilibrium Relations in Binary Systems"; D. B. Keyes, University of Illinois, "Use of a Third Component to Improve the Fractional Distillation of Binary Liquid Mixtures."

A dinner at the Jefferson Hotel served as a fitting intermission in the 2 days of meetings, and in attendance were many of the 30 charter members. They were told that from the beginning the membership has grown to almost 700.

C. R. Wagner, chief chemist for the Pure Oil Co. and secretary of the division now and for many years past, received credit for much of the progress shown in the membership rolls and the quality of the division's work. A feature of the division's activities has been its administrations of a "hydrocarbon bank" at Ohio State University where Prof. C. E. Boord has segregated pure hydrocarbons for distribution among petroleum research laboratories.

A feature of the meeting was a well-arranged display of 230 commercial chemicals made from petroleum, collected from among 13 refining and specialty companies by Dr. Charles W. Rippie.

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Ethyl Motor Clinic Opens 2-Month Showing in Tulsa

The Ethyl Gasoline Corp. motor clinic opened a 2 months' showing in Tulsa on the evening of April 7, coming from Abilene, Tex., where the clinic has been held during the previous 6 weeks. The clinic, returning after a 3 years' absence, is making its headquarters at 914 South Detroit.

The clinic reveals through pictures and demonstrations many important facts relating to automobile performance. Octane ratings of various gasolines are explained and various testing methods outlined. Feature of the clinic is a dynamometer test in which an automobile is driven at 45 miles per hour while standing still. The chassis dynamometer can be adjusted to duplicate all actual road conditions and as the automobile runs each type of gasoline is used in turn with the correct spark setting for top power without knock. The purpose is to show how to obtain maximum performance from automobiles. The clinic requires over 12 tons of equipment for conducting the tests, much of which was especially built for the demonstration.

DEATHS

FRANK L. CHASE, 76, retired vice president of the Lone Star Gas Co., a pioneer in extending natural-gas distribution facilities from Texas fields to consuming centers, died on a train near Memphis, Tenn., April 2 while en route to Dallas, Tex., where he made his home. An official of the Lone Star company for 22 years, Mr. Chase retired from the company in June 1939. Mr. Chase went to Texas in 1917 with the experience of managing eight gas companies in the Miami Valley in Ohio. A leader in gas conservation, Mr. Chase fought for the movement that brought enforcement of a law to prevent gasoline stripping-plant waste. When president of the Community Natural Gas Co., a subsidiary of the Lone Star, which he helped to organize to serve small communities in North Texas, the company grew from serving less than 50 towns in 1925 to more than 300 towns in Texas and southern Oklahoma at present.

He was honored as "the grand old man" of the natural-gas division of the International Petroleum Exposition in Tulsa in May 1940.

He was a director of the former Natural Gas Association of America, chairman of the natural-gas department of the American Gas Association, and was appointed to a federal commission, designated as the advisory board of the U. S. Bureau of Mines, in 1935.

As operating manager of the Lone Star he had direct supervision of production, pipe lines, compressor stations, gasoline plants, and telephone communication systems.

The widow of Dallas and a daughter of Washington, D. C., survive.

W. H. LANG, 45, Amarillo, Tex., died April 4 at Tulsa. He was well known among the oil industry in the Panhandle. He resided at Pampa, Tex., for several years when he was employed as field superintendent of Tulsa Rig, Reel & Manufacturing Co. He leaves his widow.

JAMES M. BRICE, 42, Tulsa oil man, died April 3 in a hotel room in New York City. Death was attributed to natural causes. His widow and a daughter survive.

LUTHER D. FULTON, 72, general superintendent of the refineries of the Pennzoil Co., Oil City, Pa., and former mayor of Titusville, Pa., died at his home in Titusville April 2. Born in Titusville, he was associated with his father in the producing business. He was later employed by the Manhattan Oil Co. and the Carbondale Machine Co. In 1901 he was employed by the Germania Refining Co. at Oil City, which later became the Penn-American and now the Pennzoil Co. During the World War he served on the Fuel Conservation Board and was associated with Dr. W. F. Rittman and others in the development of cracking fuel oil, and designed, built and operated the first vapor-phase cracking plant. He developed the first mechanical chilling machine for chilling wax distillates. He served as mayor of Titusville from 1936 to 1940. He leaves his widow and one daughter.

EUGENE J. CALBERT, 85, Oil City, Pa., a retired employe of the National Transit Co., died at his home March 30. He served National Transit as a gager for 44 years in Butler County and in other Pennsylvania producing districts. The widow, four sons, and two daughters survive.

JUSTIN BOOTH BRADLEY, 48, of Hornell, N. Y., president of the Empire Gas & Fuel Co., the Bradley Producing Co., the Empire Producing Co., vice president of the Producers Gas Corp. and director of the Belmont Quadrangle Drilling Corp. and the Forest Oil Corp., died in a Buffalo, N. Y., hospital March 28. Born in Bolivar, N. Y., Mr. Bradley was graduated from Alfred University in 1914 and has been engaged in the public utility, oil, gas and banking business. He leaves his widow, a son and a daughter.

THOMAS D. MORRISON, 82, pioneer oil-field worker in the Pennsylvania fields, died April 1 at his home in Kane, Pa. Mr. Morrison was born in Franklin, Pa., and first started lease work in 1889, in which occupation he was active until his retirement 5 years ago. At the time of his retirement he was employed by Northern Oil Co., with which he had been affiliated for more than 16 years.

SAMUEL ELDER FELTON, 70, an early-day rig-building contractor, died April 3 at his home in Tulsa, following a paralytic stroke. He had been in ill health. Mr. Felton came to Tulsa in 1907 from Tionesta, Pa. His widow, three daughters, a son, a stepdaughter and a stepson are among the survivors.

DANIEL S. WEBBER, SR., attorney and former head of the lease department of Ohio Fuel Gas Co. at Columbus, Ohio, died March 23 at his home at Chittenango, N. Y., following a short illness. He had been suffering with pneumonia. Mr. Webber came to Columbus in 1913 and returned to his native state of New York after his retirement in 1933. He leaves his widow and three sons.

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THE MARKETS*

CRUDE OIL: Spread of the April 1 crude-oil price advances to the Rocky Mountains, Louisiana, Kentucky, Ohio, and Michigan makes the higher postings apply to practically the entire producing country, excepting California and the eastern fields. An upward adjustment this week in prices posted for Illinois to meet the most liberal advance of 7 cents per barrel there a week earlier indicates that the higher quotation will become general.

REFINERY: Mid-Continent and Gulf Coast refiners have extended their earlier advances in tank-car prices, adding another ⅛ cent per gallon to quotations this week. At the higher price of 4⅞ to 5 cents per gallon quoted on regular 72-74 octane gasoline by Mid-Continent refiners there is little resistance registered by purchasers.

TANK-WAGON AND POSTED DEALER: A blanket advance of ½ cent per gallon in Middle West gasoline tank-wagon quotations was posted April 5 and other similar or higher increases were made effective April 7 in the Rocky Mountain region and in scattered portions of the Southwest. Consumer and dealer tank-wagon prices were advanced 0.2 cent to 1 cent per gallon at several New York State and New England points the first week in April.

Another advance of 0.5 cent per gallon in the tank-wagon price of gasoline in the northeastern section of the country was applied April 9 by Socony-Vacuum Oil Co., Inc., to New York and New England states, excepting western New York and the metropolitan area where prices were adjusted last week.

FINANCIAL: Oil securities reacted upward last week to improved outlook for profits in all operations. Average of 30 representative stocks for the week ended April 5: High, 23.92; low, 22.48; close, 23.69. Week ended March 29: High, 22.76; low, 22.14; close, 22.49.

*Detailed information in Market Section.

Refinery Expansion

Construction Starts on New Rock Island Refinery

INDIANAPOLIS, Ind.—Construction has started on Rock Island Refining Corp.'s 6,000-bbl. refinery at Zionsville, Ind., 15 miles northwest of Indianapolis. Contracts for all equipment are in the hands of suppliers. Construction work is scheduled for completion about September 1.

Rock Island Refining Corp. is an affiliate of Rock Island Refining Co., which operates a 7,500-bbl. plant at Duncan, Okla. L. B. Simmons is president of both companies, L. E. Winkler of Wichita, Kans., is vice president and L. F. Kincannon is vice president and secretary.

Continental Refinery Men Discuss Operating Problems

PONCA CITY, Okla., Apr. 7.—Superintendents and resident chemists from all refineries of Continental Oil Co. completed their twelfth annual conference here last week.

A review of operations at each of the company's nine refineries was presented at one session. Operating phases were discussed at another session by three representatives of New York processing and refinery-construction companies. Representatives included P. C. Keith, M. W. Kellogg Co.; W. P. Gee, Texaco Development Co., and Max B. Miller, Jr., Max B. Miller Co., all of New York.

Superintendents and chemists registered for the meetings included:

J. W. Brown and R. J. Ritter, Baltimore, Md.; J. E. Fenex and H. E. Luntz, Lake Charles, La.; D. H. Hyler and N. Newton, Wichita Falls, Tex.; R. H. Main and John Chesnik, Glenrock, Wyo.; James P. Markey, Farmington, N. M.; Charles Morgan and Nolan Horton, Artesia, N. M.; L. L. Smith and E. A. Markey, Denver, Colo.; J. A. Mann, Lewistown, Mont., and Fred G. Fellows and J. S. Hume, Ponca City.

The group will be taken to Wichita Falls, Tex., Friday in a Continental bus to inspect the company's Wichita Falls refinery.

Ark-La-Tex Refiners Will Hear Safety Talk Friday

EL DORADO, Ark., Apr. 8.—Safety will be the topic for discussion at the regular monthly meeting of the Ark-La-Tex division of Western Petroleum Refiners Association, April 11, at the Randolph Hotel, El Dorado, Ark., starting at 4 p.m. The principal speaker will be W. W. Weldon, safety director of the Standard Oil Co. of Louisiana, at Baton Rouge, whose subject will be "Accident Prevention Pays Dividends."

At Standard Oil Co. of Louisiana's Baton Rouge refinery, where there is an average force of 4,500 employes, there has been established a new world's record for hours of exposure in the petroleum-refining industry without a disabling injury when they worked from January 13 to August 3, 1940, 203 days, and accumulated 4,216,600 man-hours without a disability. The company won the National Safety Council contests, manufacturing division, in 1939 and 1940, and at last reports is still leading. Standard's record has been recognized by the United States Bureau of Mines on numerous occasions when special bulletins were issued, outlining the company's accomplishments.

Mr. Weldon has been untiring in his efforts to maintain and improve the Standard's safety record, and much that has been accomplished is due to his work. All of his working life Mr. Weldon has been with the Baton Rouge refinery where he will complete 24 years of service this summer. Prior to his service as safety director for the company, he was in mechanical maintenance and construction work also devoting some years of his service to process equipment. He is now serving as special agent of the Department of Labor on the National Committee for the Conservation of Man Power in Defense Industries, and he was recently elected general chairman of the Southern Safety Conference.

Tyreco Plant at Artesia Bought by New Firm

ARTESIA, N. M.—A. R. Matthews of St. Elmo, Ill., and associates have formed the Southwest Oil and Refining Co. and purchased the former Tyreco refinery here, originally the Midwest Refining Co. plant, for a consideration of $50,500 from Bethlehem Supply Co. and Black, Sivalls & Bryson, Inc., who foreclosed on the property last year. The plant has a crude capacity of 2,000 bbl. daily. The new operators plan building a 1,600-bbl. cracking unit in the near future.

Part of the crude for the plant will come from the Getty pool east of Carlsbad. The balance will come from the Artesia area.

Named as incorporators were S. O. Pottorff, vice president of the First National Bank of Artesia; David Chavez, Paul Frank and I. E. Lambert of Santa Fe and C. L. Tallmadge, refiner and producer, of Artesia.

Idaho Refining Co. Increases Purchases in Cut Bank Field

DENVER, Colo.—Idaho Refining Co. has announced that its crude-oil purchases in the Cut Bank field of Montana will be stepped up from 700 to 1,200 bbl. daily, displacing that amount of crude formerly bought in the Lance Creek field of Wyoming. The contract was signed last week following a meeting of refinery officials and Cut Bank producers. The company operates a 2,000-bbl. refinery at Pocatello, Idaho, with a cracking capacity of 1,250 bbl. daily. The enlarged purchases will result in increased drilling in the Cut Bank field.

Magnolia to Discontinue Corsicana, Tex., Refinery

CORSICANA, Tex.—Magnolia Petroleum Co. will discontinue operation of its refinery at Corsicana, Tex., probably by the middle of the year when expansion now under way at Fort Worth, Tex., is completed.

Announcement of the long-rumored closing of the Corsicana refinery, the first plant constructed west of the Mississippi River, has been made by D. A. Little, president of the company.

Natural Gas

Moderate Temperature Reduces Gas Revenues

NEW YORK, Apr. 8.—Revenues of manufactured and natural-gas utilities totaled $91,621,500 in January, a decrease of 1.4 per cent from the figure of $92,947,500 reported for January 1940, a month of abnormally low temperatures.

Natural-gas utilities reported revenues of $56,464,300 in January, a decrease of 1.9 per cent from January 1940.

Natural-gas sales for industrial purposes amounted to 65,134,400,000 cu. ft., an increase of 8.3 per cent from the figure reported in January 1940. Sales of natural gas for generating electric power aggregated 13,787,000,000 cu. ft., an increase of 6.8 per cent from a year ago.

Tennessee Gas Hearing Resumed at Washington

WASHINGTON, D. C.—Hearings were resumed here April 8 before the Federal Power Commission, upon application of the Tennessee Gas & Transmission Co. for permission to construct and operate a natural-gas pipe line from Louisiana to serve cities and communities in Tennessee and in western North Carolina.

The amendment changes the location of the proposed line with reference to sources of natural-gas supply by extension of the line into gas fields in the southern Louisiana area. Also minor changes are proposed in the distribution facilities to be constructed along the route which includes the cities of Nashville, Chattanooga and Knoxville, Tenn., and Asheville, N. C., and vicinity.

The company further proposes in its amendment to serve resale and direct industrial customers at any point along the route, within reasonable proximity, under such rates and conditions as may be prescribed by the commission. Where necessary, separate state corporations will be formed to provide for distribution of natural gas, it is stated.

Interveners in the case are Southern Natural Gas Co., which is extending its line to Chattanooga, and the Kentucky Natural Gas Corp., which has under consideration extension of its lines into the Nashville area.

Gas Use in Air Conditioning Will Be Displayed at Dallas

Gas-fired air-conditioning equipment has taken tremendous strides forward, technical and sales developments have been in step and further price reductions would seem to be indicated in the near future because of greater production.

The Natural Gas Section of the American Gas Association is recognizing the importance of this development by showing an exhibit of summer air conditioning by gas at the thirty-sixth annual Natural Gas Convention, Dallas, Tex., May 5-7.

Arkansas Louisiana Buying Camden Plant, F.P.C. Told

WASHINGTON, D. C.—The Camden Gas Corp. and the Arkansas Louisiana Gas Co., with principal office at Shreveport, La., have filed with the Federal Power Commission a joint motion to dismiss the proceeding concerning alleged discriminatory rates for natural gas purchased by the Camden corporation from the Arkansas Louisiana company.

The joint motion states that an agreement has been reached whereby Camden Gas Corp. is selling and Arkansas Louisiana Gas Co. is purchasing for $226,000 the gas distribution plant serving Camden, Ark., and vicinity. Under terms of the agreement, it is stated, the transfer is to be consummated in about 60 days unless foreclosure proceedings are resorted to and, with approval of the commission, it is proposed to grant the Camden corporation a reduction of $5,000 annually in town-border delivery charges. The Camden unit proposes to pass three-fifths of this reduction to domestic consumers, the remainder to be retained until it recovers "all expenses incurred in connection with this litigation, at which time the entire reduction will be passed to its customers other than industrial in such form as the Arkansas Department of Public Utilities may direct or approve."

Natural Gasoline

Loco Hills Operators Form Pressure-Maintenance Group

HOBBS, N. M.—The Loco Hills Pressure Maintenance Association has been formed in New Mexico for the purpose of constructing a $250,000 pressure-maintenance plant for the Loco Hills field of Eddy County. Operators expect to incorporate 130 of the field's 160 wells in the program. The program will require approximately 40 miles of field lines to connect wells and the plant.

Pressure maintenance of Loco Hills is expected to be highly feasible, according to Charles A. Aston, consulting geologist who carried out the survey of the field. One main sand body is continuous throughout the field, "liming up" on the north side with bottom-hole water present oownstructure.

PROGRAMS AND MEETINGS

National Petroleum Association Announces Cleveland Program

The thirty-eighth semiannual meeting of the National Petroleum Association will be held in Cleveland, Ohio, April 23-25, the meeting headquarters being announced as Hotel Cleveland. On the evening of April 23, the fall program of the A.P.I. lubrication committee will be presented, with the general sessions getting under way the following morning. The theme of the general sessions will be national defense. As usual the fellowship supper will be held Thursday evening. Reports from the hotel indicate a record attendance.

Following is the complete program of the meeting.

GROUP MEETINGS

Wednesday, April 23

2 p.m.—A.P.I. Lubrication Committee.

2 p.m.—Western Pennsylvania Refiners Traffic Association.

6 p.m.—Executive Committee, Department Fire and Accident Prevention.

7 p.m., Rose Room.—Presentation Fall Program, A.P.I. Lubrication Committee.

Thursday, April 24

9:30 a.m.—Board of Trustees.

10 a.m.—Department of Traffic and Transportation.

Round Table:

M. J. Gormley, executive assistant, Association of American Railroads, will lead discussion on "Transportation and National Defense."

10 a.m.—Department of Standards and Tests.

Symposium on Engine Testing:

Heavy-Duty Oils as Measured by Engine Tests, H. C. Mougey, technical director, General Motors Corp.

Use of Small-Scale Single-Cylinder Engines for the Evaluation of Motor Oils, A. O. Willey, Lubrizol Co.

Some Comments on Engine Testing, Hugh Hemmingway, Kendall Refining Co.

Multicylinder-Engine Tests, C. W. Georgi, Quaker State Oil Refining Corp.

GENERAL SESSIONS

Thursday, April 24

2 p.m.—President's Address:

N. H. Weber, president, National Petroleum Association.

Petroleum in Two World Wars, E. DeGolyer, DeGolyer, MacNaughton & McGhee, Appraisal Engineers.

Aviation Spreads Its Wings, Lauren D. Lyman, assistant to the president, United Aircraft Corp.

Friday, April 25

Defense Requirements for Lubricating Oil, P. M. Robinson, assistant to the consultant, Petroleum Unit, Office of Production Management.

Britain's Battle, Brinley Thomas, Montreal, Que.

The Mutual Interests of the Western Hemisphere. Nelson Rockefeller, coordinator of commercial and cultural relations between the American republics.

Eastern A.P.I. Program Covers Many Phases of Operations

The spring meeting of the Eastern District of the American Petroleum Institute's Division of Production will be held April 17 and 18 in the William Penn Hotel at Pittsburgh, Pa., it has been announced by J. J. Schmidt, of East Ohio Gas Co., Cleveland, Ohio, district chairman.

Sessions will be devoted to discussions of secondary-recovery methods and projects in the eastern area; drilling and development problems; and prospecting, developing and operating practices, equipment, and underground surveying. Among the speakers will be R. B. Bossler, of Brundred Oil Corp., Oil City, Pa.; Parke A. Dickey, Pennsylvania Topographic and Geologic Survey, Harrisburg, Pa.; J. E. Schaefer, East Ohio Oil Co., Cleveland; N. M. Wilder, Petroleum Exploration, Inc., Lexington, Ky.; A. H. Bell, Illinois State Geological Survey Division, Urbana, Ill., and E. T. Heck, West Virginia Geological and Economic Survey, Morgantown, W. Va.

Committee chairmen directing the meeting are: Program, O. W. Van Petten, Columbian Carbon Co., Charleston, W. Va.; registration, W. A. Watkins, Carter Oil Co., Mattoon, Ill.; arrangements and entertainment, V. F. Bowyer, Peoples Natural Gas Co., Pittsburgh; and publicity, M. G. Gulley, Gulf Oil Corp., Pittsburgh.

Record Attendance Likely At Gas Measurement Course

NORMAN, Okla., Apr. 8.—Another record registration for the seventh annual Southwestern Gas Measurement Short Course here April 15, 16, and 17 is indicated by premeeting interest manifested by individuals and companies. The program has been planned on the basis of experience with past courses and with modifications to permit inclusion of additional subjects of interest to gas operators.

The general committee is headed by R. L. Rountree, United Gas Pipe Line Co., Shreveport, La. Other members of the general committee are Dean W. H. Carson, University of Oklahoma, Norman; G. W. McCullough, Phillips Petroleum Co., Bartlesville, Okla.; Kate A. Niblack, Oklahoma Utilities Association, Oklahoma City, Okla.; R. M. Scofield, Lone Star Gas Co., Dallas, Tex.; C. A. Gibson, Cities Service Gas Co., Bartlesville; Earl Kightlinger, Arkansas-Louisiana Gas Co., Shreveport; Max L. Watson, Canadian River Gas Co., Amarillo, Tex.; W. F. Lowe, Natural Gasoline Association of America, and E. C. McAninch, Oklahoma Natural Gas Co., Tulsa; W. R. McLaughlin, Pittsburgh Equitable Meter Co., Dallas; E. M. Myers, Corporation Commission of Oklahoma, Oklahoma City; J. H. Page, Kansas Corporation Commission, Wichita, Kans.; Dr. F. V. L. Patten, Railroad Commission of Texas, Austin, Tex.; E. H. Poe, Natural Gas Section, A.G.A., New York; J. H. Satterwhite, American Meter Co., Inc., Tulsa; E. L. Stark, Foxboro Co., Dallas; R. J. Sullivan, Humble Oil & Refining Co., Houston, Tex.; C. E. Terrell, Southern Natural Gas Co., Birmingham, Ala., and W. H. Woods, Gulf Oil Corp., Houston.

R. W. McDOWELL, vice president, Mid-Continent Petroleum Corp., will review basic changes in the petroleum industry since 1939, with special emphasis on the manufacturing branch as one of the features of the twenty-ninth annual meeting of the Western Petroleum Refiners Association. The meeting will be held April 16-18, at Hot Springs, Ark. Details of the program were published on Page 33, in the April 3 issue of The Oil and Gas Journal

Power Engineers Convene in Chicago For Annual Meeting

CHICAGO, Apr. 8.—Power engineers from all parts of the country convened in Chicago this week for the annual Midwest Power Conference April 9 and 10.

During the 2-day meeting engineers heard papers on practically all phases of the nation's power problems from authorities in their respective fields.

Philip Harrington, Chicago, commissioner of subways and superhighways, welcomed the engineers, and Huber O. Croft, head of the department of mechanical engineering, State University of Iowa, responded. C. W. Kellogg, chief consultant of the power unit, Office of Production Management, Washington, D. C., spoke on power facilities and their relationship to the defense program. A. G. Christie, professor of mechanical engineering, Johns Hopkins University, reviewed trends of modern power.

Alfred Iddles, application engineer, Babcock & Wilcox Co., New York, spoke at a luncheon session April 9, on "The User Wants to Know." F. H. Rosencrants, vice president, Combustion Engineering Co., Inc., New York; C. C. Franck, engineer in charge of central-station turbines, Westinghouse Electric & Manufacturing Co., Philadelphia, Pa., and G. V. Edmonson, hydraulic coupling division, American Blower Corp., Chicago, spoke on the April 9 afternoon program devoted to central-station practice.

Roger B. McWhorter, chief engineer, Federal Power Commission, Washington, D. C.; Sherman M. Woodward, chief water-control planning engineer, Tennessee Valley Authority, and W. J. Rheingans, test engineer, Allis-Chalmers Manufacturing Co., Milwaukee, Wis., spoke at the April 9 session on hydro power.

Dr. Harvey N. Davis, president, Stevens Institute of Technology, was the dinner speaker Wednesday night. His subject was "Priorities in Men." James D. Cunningham, president, Republic Flow Meters Co., was the dinner toastmaster.

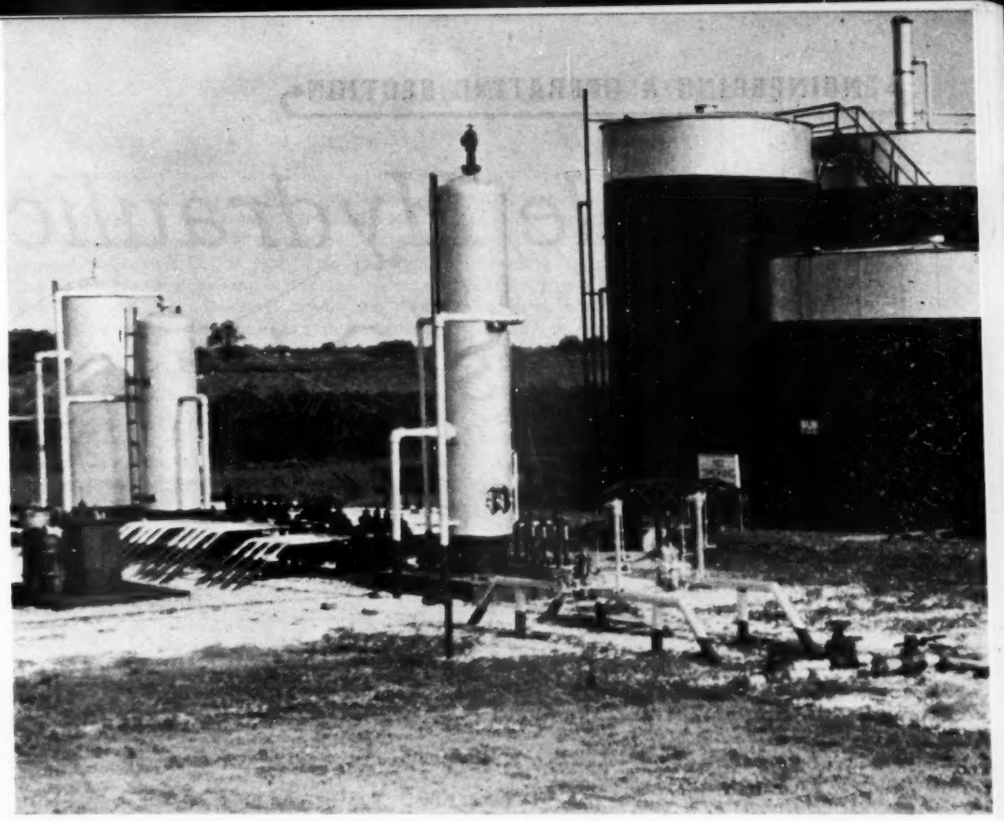
Sessions on April 10 were concerned with electric-power transmission, industrial power plants, and on feed-water treatment. Speakers included H. E. Wulfing, system development engineer, Commonwealth Edison Co., Chicago; W. J. McLachlan, engineer in charge of apparatus line sponsor section, General Electric Co., Schenectady, N. Y.; R. S. Hawley, acting chairman, department of mechanical engineering, University of Michigan; Charles W. Parsons, Republic Flow Meters Co., Chicago; John T. Davis, superintendent, heating division, Indianapolis Power & Light Co.; Arthur E. Kittredge, chief engineer, Cochrane Corp., Philadelphia, Pa.; Frederik G. Straub, research associate professor of chemical engineering, University of Illinois, Champaign, Ill., and Maj. Charles W. Leihy.

C. A. Nash, Illinois Institute of Technology, is secretary of the conference, and Stanton E. Winston, conference director of the institute, directed the meeting.

Electrical Association Completes Meeting Plans

The fourteenth annual convention of the Petroleum Industry Electrical Association which is to be held at the Mayo Hotel in Tulsa April 23, 24, and 25 promises to be one of the best attended held by the organization. Word has been received that the members of this association and those of the Petroleum Electric Supply Association who plan to attend will arrive on a special train from Dallas, Tex., on the day preceding the annual discussions, in order to attend the Tuesday noon luncheon.

The local committee has arranged an elaborate program and floor show for the banquet, and numerous suppliers of electrical equipment to the oil industry will have display booths and technicians on hand to explain the operation of the various devices.



Multistage separation of oil and gas is required in high-pressure fields in order to conserve oil gravity and to reduce loss of gas through vaporization. The central field storage tanks and multistage separator installation shown here is in the Valentine field of La Fourche Parish on the Louisiana Gulf Coast

ENGINEERING & OPERATION

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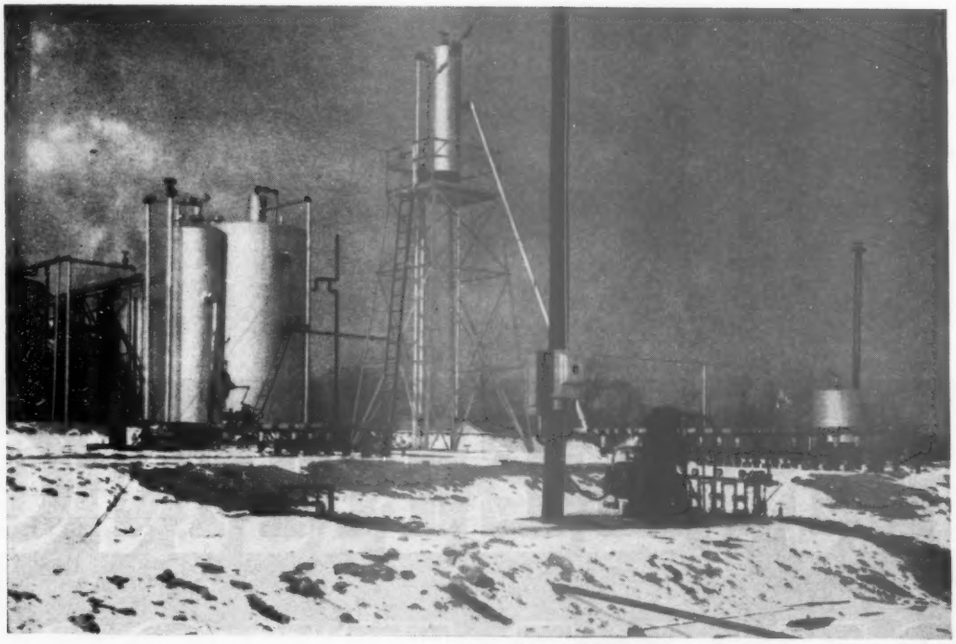
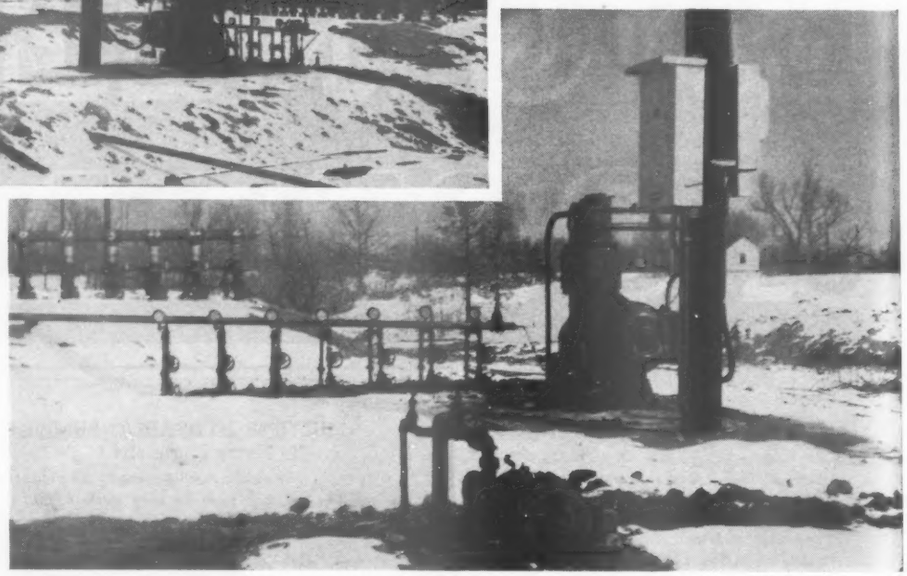
Multiple Hydraulic Pumping In Illinois Oil Fields

By HARRY F. SIMONS





Left: General view of tank battery, treating equipment and hydraulic pumping unit in the Salem field of Illinois. Below: Electrically driven centrifugal pump in foreground supplies power oil to triplex pump. Manifold for power-input oil is in center and production manifold is at left rear

BULK of production in Illinois comes from horizons above 3,500 ft. and because of ineffective drives in the reservoir practically all of the oil must be lifted by some artificial means. There is no problem presented by depth but the rather rapid decline of the wells demands that any pumping arrangement selected must be very flexible; the low per-well production makes it mandatory that the method selected be very economical when small volumes are being handled.

While most of the pumping in Illinois is by the beam method, in recent months there have been several leases equipped with fluid-driven bottomhole pumps. This type pump has been used for a number of years in deeper production and in fields where large volumes of fluid needed to be handled. The method in Illinois consists of installing a central power plant and then running power-oil lines to the individual wells. In this manner one power unit is used for lifting the oil from as many as 12 wells and as few as 2 wells.

Essentials of the system include a surface pump which supplies power oil through a macaroni string to a reciprocating pump at the bottom of the well. The exhaust from the power cylinder is into the tubing and the used power oil is brought to the surface with the production.

Four leases in the Salem field are equipped with such pumping arrangements at the present time; each pumps 10, 12, 9 and 7 wells respectively. The production is from the Devonian lime around 3,500 ft. In the recently developed Hoodville pool in Hamilton County one such installation is handling four wells; the production is from the Benoist and Aux Vases sands at about 3,000 ft. At Fox Island, near New Harmony in White County, a central pumping installation is handling eight wells and in the Griffin field of Indiana a similar setup is pumping two wells. In the latter fields the production is obtained from sands (mainly the Cypress) at about 2,500 ft.

All of the units are essentially the same except for the depth and different characteristics of the producing horizons. The Devonian has a high initial production and in some places carries considerable water. The sands are fairly tight and have comparatively low initials, below 400 bbl. and decline far more gradually than the lime wells.

On the larger leases at Salem, 40-hp. electrically driven triplex pumps are used to provide the power oil while on the smaller leases 25-hp. units are used. The triplex pumps have a variable capacity and by installing a larger driving motor or engine, the revolutions per minute can be increased and the size of the pump pistons reduced. This permits an increase in the hydraulic horsepower without overloading the bearings on the pump. The maximum speed for a 25-hp. unit is 163 r.p.m. while for the 40-hp. unit the maximum is 300 r.p.m. Where gas engines are used as a driving medium the revolutions per minute is controlled by the speed of the engine but is kept below 300 r.p.m. The triplex pump is capable of delivering 53.9 bbl. per hour at a pressure of 2,100 lb.

The power oil is delivered to the triplex pump suction by an electrically driven centrifugal pump located close by. On installations using internal-combustion engines for driving the triplex pump, the charging pump is connected to the engine shaft.

The power oil is merely part of the crude already produced from the well. The one essential of the power oil is that it be free from sand and have a low b.s. and w. content. The oil generally is clean in most Illinois fields, the b.s. and w. running about 0.1 per cent. The triplex pump and the reciprocating pump in the bottom of the hole will operate successfully on oil having a 0.2 per cent b.s. and w. The power oil is allowed to settle for 24 hours in a tank before it is delivered to the triplex pump.

Output of the triplex pump is delivered to a manifold at the central plant location and individual 1-in. lines run from there to the wells.

The arrangement of the manifold and lines to the wells at Salem is such that it is a simple matter for the pumper to know which line connects to which well. None of the lead lines cross, the arrangement being fan-shaped (see diagram), and the manifold connections are numbered. The length of the power lines varies from 100 to 1,900 ft.

Pressure gages for the power line to each well are located at the manifold with none at the well head. Pressure on the lines at the manifold will vary from 1,200 to 1,600 lb. per sq. in. When the working pressure builds up about 400 lb. per sq. in. it is an indication that the lines are becoming clogged with paraffin. A unique procedure is used for cleaning the lines, a rubber ball being inserted back of the manifold and forced through to the well head where it is retrieved; the ball is from ½ to ¾ in. larger than the inside diameter of the pipe. There is little trouble from paraffin except during cold weather and even then the deposits are soft and easily eliminated.

Some leases in Illinois equipped with hydraulic pumping units (not at Salem) are flooded during part of the year. Plug receivers are installed on the power input lines of these wells so the paraffin can be removed if necessary even though the lines and well heads are under water. These plug receivers consist of a 7-ft. section of 7-in. casing swaged down to 1 in. on each end. The rubber ball is caught in this trap while the power oil goes on through to the well head. The rubber ball can be recovered at any time during the dry season.

The well head is very simple consisting of the usual 2½-in. tubing with a special tee. On top of the tee is a small spider which supports the macaroni string of 1-in. Grade B seamless line pipe; in some cases the macaroni string may be smaller. Setting depth of the pumps in Salem is approximately 3,400 ft.

The pumps are run inside the tubing on the macaroni string the same as an ordinary insert pump is run in on a rod string. The pump is retrieved from the bottom by pulling the power string. A seat in the bottom of the tubing receives the pump. The proximity of the pump to bottom is determined by the type of gas anchor needed for the particular well. In the Salem field the gas anchor used allows the pump to be located about 10 ft. from bottom; by remodeling the assembly, the pump could be located on bottom.

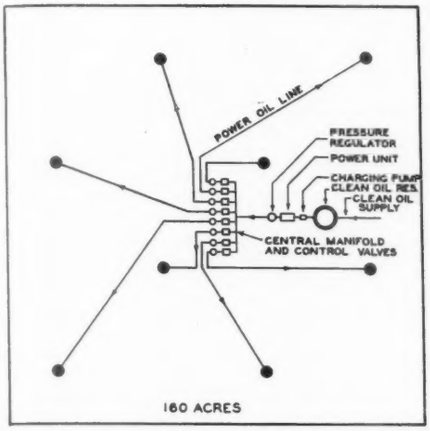
A large volume of fluid was anticipated at Salem and for this reason, 2½-in. pumps were installed originally. These pumps would have handled approximately 500 bbl. per day. The production has declined to around 75 bbl. per day or less and smaller pumps have replaced the first ones. The ratio of input power oil to produced oil is 1 to 1¼. This means that 1 bbl. of power oil is pumped into the hole for 2.25 bbl. produced at the surface.

By changing the size of pistons in the pump the relation of power oil to produced oil can be adjusted to any desired ratio. By increasing the size of the power piston more oil at less pressure is required to lift the production to the surface; by decreasing the size of the power piston, less oil at more pressure is required. Adjustment of the piston size thus permits any production rate to be obtained without changing the surface equipment. Even very small wells can be pumped economically by proper selection of pump-piston size.

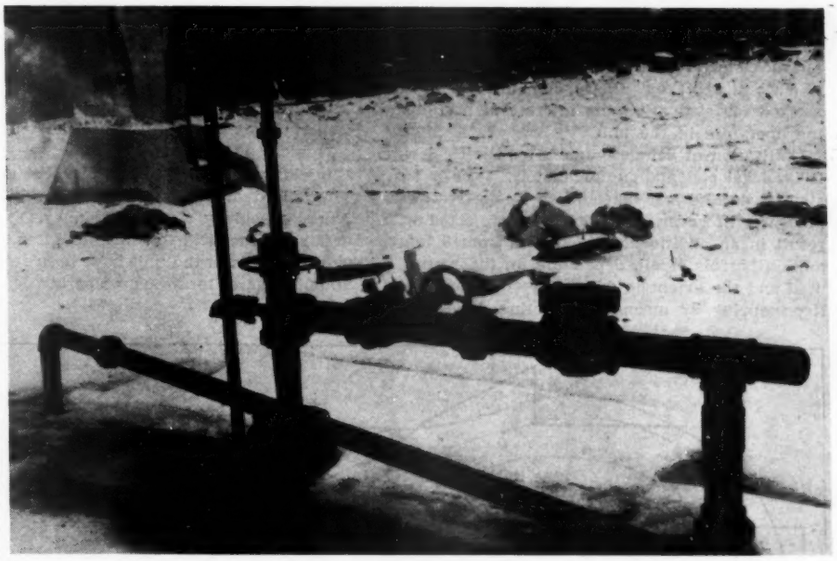
Operation of this type pump in Illinois has been free from trouble. Pumps have been pulled from wells but practically all of the pulling jobs were due to a desire to change the piston size and the power oil-produced oil ratio. If the desired size pump is installed originally and clean oil is used for driving it, the pumps will ordinarily operate for several years without trouble. The length of time a pump will operate is dependent on conditions in the well.

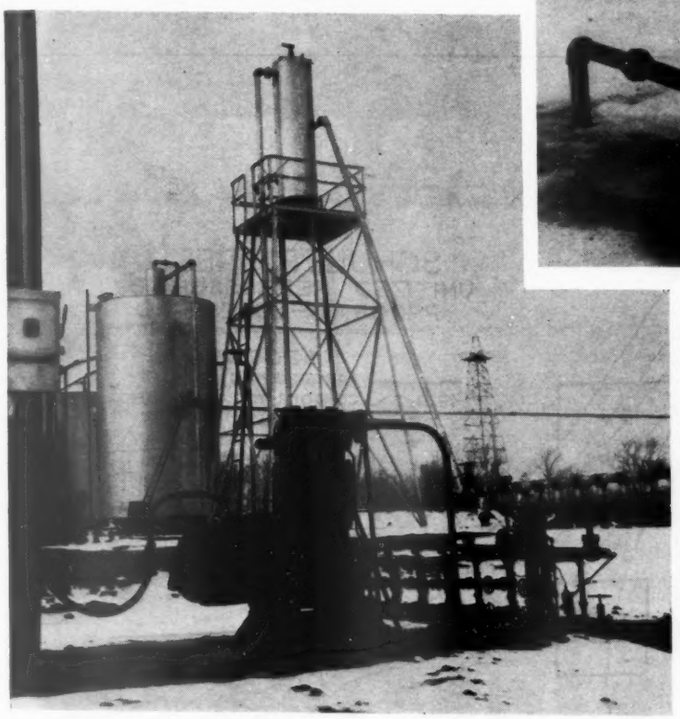
Many wells have a tendency to deposit paraffin in the tubing and the operations at Salem are no exception. However, with the hydraulic pumping employed it has been found possible to reduce the paraffin deposition. This is done by using back-pressure valves and gages on the 2½-in. tubing and building up the back pressure until solid pump strokes appear on the gage. This shows that the pressure is sufficient to hold the gas in solution with the oil and a solid fluid column is present in the tubing. It has been found that the point of greatest deposition of paraffin is at the point where the gas comes out of solution.

Before this method was introduced at Salem, some trouble was experienced with paraffin in the tubing. The method employed to clear the tubing was to increase the number of strokes of the pump in the well from the normal 50 to around 100 s.p.m. This was sufficient to break the paraffin bridge. Another method which was tried successfully was to heat the power oil which normally has a temperature of around 40° F. After applying heat for 45 minutes the power oil had a temperature of 260° F. and the oil at the stuffing box had a temperature of 80°. At this point pressure on the well dropped to normal and it was evident the tubing was clear. Paraffin can also be eliminated by twisting the power string about five turns. This produces a scraping action on the inside of the tubing and loosens the paraffin to the point where the oil will force it out the well head.



Above: Diagram of multiple hydraulic pumping arrangement used at Salem, Ill. Note that the lines do not cross





Above: Hydraulic pumping installation on well. Note the simple connections which include a special tee and spider for supporting the macaroni string. Left: Triplex power-oil-input pump driven by a 25-hp. electric motor and manifold for multiple hydraulic pumping of leases at Salem, Ill. The pump has a variable capacity and is easily adapted to well requirements

Schuler Unitized Repressuring Project Is First in Arkansas

By GEORGE WEBER

UNITIZATION of the Jones sand pool in the Schuler field is an important step in the current trend to cooperative conservation. The project, which provides repressuring of the Jones sand, is the first of its kind in Arkansas and may herald other similar operations in that progressive oil state.

Schuler represents one of the largest oil fields which have been placed on unitized operation. The new work is of particular interest to students of gas-drive reservoirs and their producing characteristics, since the Jones sand is a classic example of such a reservoir. Of further interest is the method for evaluating the interest of participating operators in the unit.

Unitization at Schuler came after the field was fully developed and, unfortunately, after a substantial decline had taken place in the reservoir pressure. However, the work now projected will result in an additional recovery of from 8 to 16 million barrels of oil, depending on the methods used and the extent to which they are employed. Repressuring by means of injecting Jones sand gas, other gas, air or water is provided under the unit agreement.

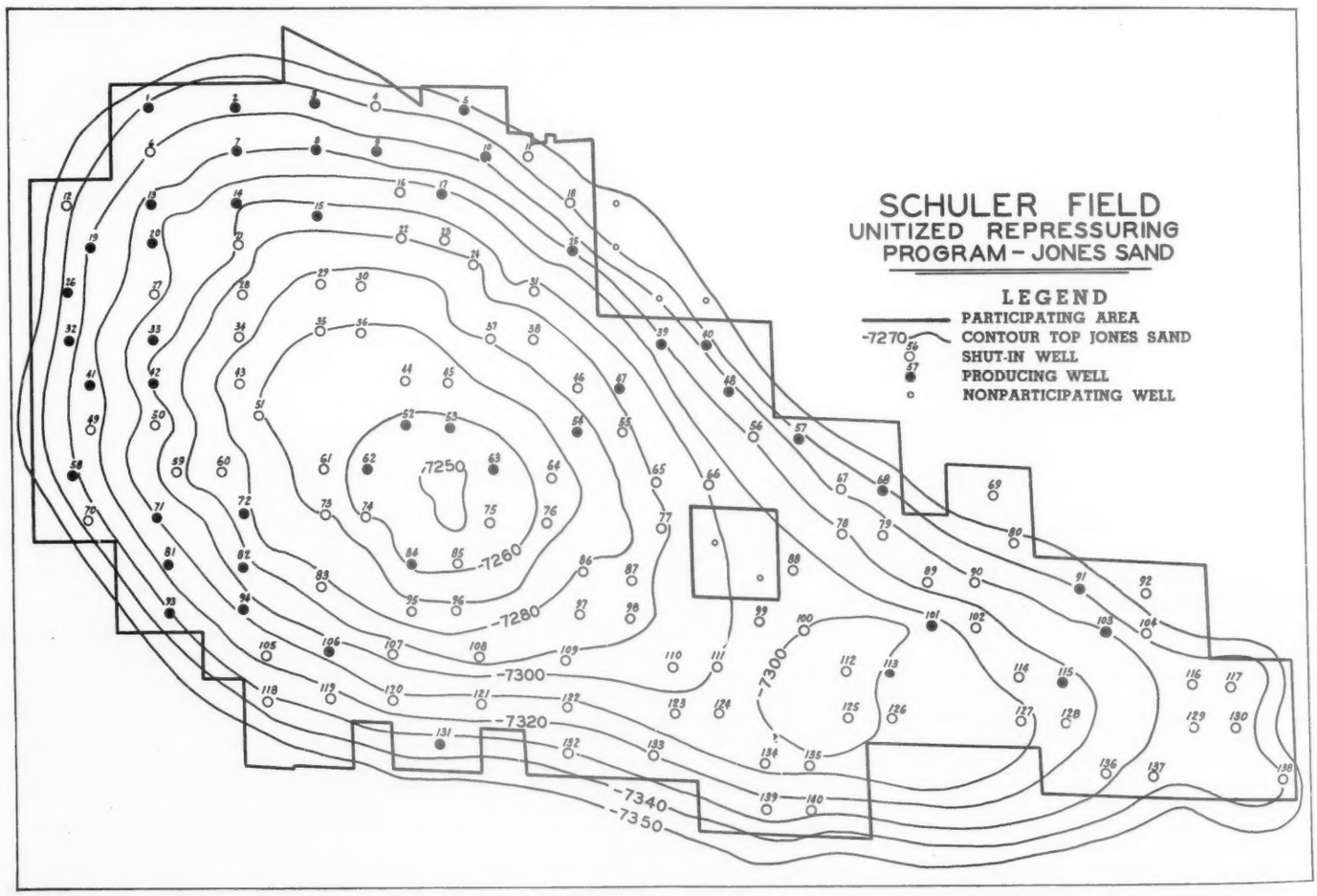
Unit Agreement

The agreement operators made effective in February combines the best points of previous agreements pooling operating rights in severally owned oil properties. The agreement was signed by 12 of the 13 operators in the field. Of the 146 Jones sand wells, 140 wells produced 95.76 per cent of the current allowable of 13,500 bbl. daily, are included in the unit. Ninety per cent of all royalty owners in the unit have also signed the agreement.

The accompanying map shows the outline of the unitized acreage, excluding the 120 producing acres held by the Alice Sidney Oil Co., sole operator in the field to refuse to enter the agreement. All wells in the unit have been renumbered without regard to former separate lease designation.

The undivided interest in the production of oil and gas, and the share which each party to the agreement carries in the cost of the project is set in a tabulation of participation in the unit. The basis for participation in the unit is not producing acreage alone, as is generally the case in unitization agreements. Instead, each tract in the unit area is assigned a value in proportion to the value of all such drilling units, in the same ratio thereto as the number of barrels of oil which the drilling unit was allowed to produce each 24-hour day from the Jones sand under the allowable schedule of August 1, 1940, bears to the total daily pool allowable for the Jones sand, fixed by the commission as a basis of said allowable schedule.

The allowable schedule for Schuler at the time designated was fixed on an acre-pound basis. Each well's allotted acreage was multiplied by its bottom-hole pressure, either directly measured as in key wells, or interpolated from the monthly pressure map of the field. The total of all per-well acre-pound products was divided into the total daily crude allowable allotted the Jones



The Jones sand reservoir of the Schuler field is a classic example of gas drive. The general structure on the top of the sand is indicated in the contours. Solid wells are those used for producing the field's current allowable, chosen for low gas-oil ratios due to position on structure or completion in the base of the sand

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sand, obtaining the factor, "barrels per acre-pound." This in turn was applied to each well by multiplying by its acre-pound factor, and the well's daily allowable in barrels was thus determined. Hence, interest in the unit is placed on an acre-pound basis, instead of the straight acreage factor usually used in determining participation.

This equitable basis is believed by signatory operators to represent a true measure of recoverable oil in place, in a gas-drive field. Although a gas-oil ratio limit of 3,500 cu. ft. per bbl. was included in the allocation formula, it was suspended during July and August 1940 to permit an investigation of operating practice in the pool, conducted by the Schuler engineering committee. The correction for high-ratio wells, therefore, is not included in the computation of participation in the unit area.

In its order providing unit operation for the portion of the Jones sand pool, the commission revised the allowable schedule. A basic percentage of total field production of 96.7564 per cent is allotted to the unit, and the remaining fraction is allotted the six wells of the Alice Sidney Oil Co., which remained outside the unit. When gas injection begins, the basic percentage factor will be corrected to take into consideration net voidage, or total volume of oil and gas withdrawn less gas returned to the sand, with volumes calculated at reservoir pressure.

The order provides that "the ratio of the basic percentage allowed per unit to the net reservoir volume voided by oil plus net gas produced from said unit—divided by the sum of such ratios for the pool—shall give the adjusted percentage factor for each unit." Thus the unit injecting gas will be compensated by an increased percentage of the total pool allowable.

Administration

An operating committee of five members representing the signatory operators is provided in the agreement. Voting power of the members is measured by the interest of the parties they represent in the whole unit. Three persons who represent persons owning at least an undivided 51 per cent of the interest in the unit, will constitute a quorum.

The operating committee is empowered to appoint a corporation or person to act as operator of the Schuler unit. Accordingly, the Lion Oil Refining Co., which has a 44 per cent interest in the unit, has been named operator. The company's production department is making plans for the repressuring project and has begun corrective practices in the field production schedule.

Preliminary Work

The first necessity facing the operator was the need for cutting the rapidly increasing gas-oil ratio. From August 1940 to the last of the year the average field ratio rose from 2,307 to 2,850 cu. ft. per bbl. Immediately on taking over the unit, the operator closed in wells producing at high ratios and allocated the unit's daily production to low-ratio wells. During the first 15 days of operation, daily production was taken from 44 to 54 wells, and the ratios and producing characteristics of those wells were closely watched. In general, the number was cut to those wells showing ratios of less than 2,000 cu. ft. per bbl., indicated in solid black on the map.

As a result, the operator was able to report to the operating committee that the average ratio had been cut to 1,292 cu. ft. per bbl. for the period of February 14-28 inclusive. During that period 181,276 bbl. of crude was produced. Wells now on production vary in ratios from 480 to 2,000, while previous production had been from wells ranging as high as 10,850 cu. ft. per bbl. It is interesting to note that up to the present, the increased withdrawals of oil from wells now on production have not resulted in a per-well ratio rise. Several additional weeks of production will be required before any definite ratio trend can be indicated, however, and future gas production is not yet determined.

Repressuring Plant

The operator has completed preliminary plans for return of gas to the Jones sand. By late June temporary injection is expected to begin, utilizing four 600-hp. compressors capable of handling approximately 14,000,000 cu. ft. of gas daily. This gas will represent 90 per cent of the field's production, the remainder being used for fuel in carrying out operations. Eventually the horsepower of the compressor plant will be doubled.

At present, groundwork is being laid for plans of the entire project. Ultimately all gas produced from the Jones sand, in addition to gas from other reservoirs, will be processed in a natural gasoline plant, compressed and injected to the Jones horizon. Several factors influencing the design of such a project must first be determined. Before the field gathering and injection systems can be drafted, the probable production program must be outlined. Current experiments with low ratio wells will aid in determining which should be used for withdrawals, and a study of the structure and subsurface data on wells located high and in the gas-cap area will result in choice of injection wells.

The operator will continue to add to the wealth of data on Schuler as the repressuring project progresses. In the opinion of several experts who have testified on Schuler, there is more pertinent data at hand on that field than on any other oil field in the nation. This is a result of careful development by operators, and vigilance in accumulating production information on the part of the Arkansas Oil and Gas Commission. Over 85 per cent of the wells in the field were cored in the Jones horizon, with an average core recovery of 80 per cent. Electrical logs were run on all but two wells. All wells were drilled through the Jones section, casing set on bottom, and the wells completed through perforations. Such complete information and universal completion practices constitute a valuable aid in studying the field and applying best conservation principles to its future production.

The following tabulation lists the primary data on the Jones pool. A complete history of Schuler's production includes monthly data on voidage of space due to withdrawal of oil, free gas, solution gas and water and volumetric and areal averages of reservoir pressure. The operator will continue to take bottom-hole pressure readings every 2 weeks, using the same key wells formerly used. In addition, daily pressure readings will be made on tubing and casing of producing wells and a grindout on each separator.

Primary Data on Jones Pool

Location—T. 18s, R. 17w and 18w, Union County.
Geology—Anticlinal fold, 7,300 ft. subsea.
Producing Formation—Jones sand.
Discovery—E. M. Jones, 1 Marine, Sept. 17, 1937.
Type Drive—Gas.
Well Spacing—20 acres.
Gas-Oil Contact—Minus 7,280 ft. subsea.
Oil-Water Contact—Minus 7,380 ft. subsea.
Effective Sand Section—37.5 ft.
Average Porosity—17.6 per cent.
Average Permeability—355 millidarcys.
Connate Water, estimated -15 per cent.
Shrinkage—44 per cent.
Recovery Factor—30 per cent.
Gravity of Oil—34° A.P.I.
Producing Wells—116.
Producing Acreage—2,944.
Current Allowable—13,500 bbl.
Allowable per Acre—4.58 bbl.
Gas-Oil Ratio:
  Original—500 cu. ft. per bbl.
  Feb. 1, 1941—2,732 cu. ft. per bbl.
  Feb. 15, 1941—1,350 cu. ft. per bbl. (unit operation).
Reservoir Pressure:
  Original—3,520 lb. per sq. in.
  March 5, 1941—1,565 lb. per sq. in.
  Change—1,955 lb. per sq. in.
Estimated Reserves:
  Former Operation—28,000,000 bbl. (ultimate).
  Repressuring—36,000,000 bbl. (ultimate).
  Repressuring and Water Flood—40,000,000 bbl. (ultimate).
Cumulative Production:
  Oil—16,551,748 bbl. to Feb. 1, 1941.
  Gas—23,829,526,000 cu. ft. to Feb. 1, 1941.
Recovery per lb. Drop:
  Oil—8,466 bbl.
  Gas—12,189,000 cu. ft.

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BOOK REVIEWS

WRITING THE TECHNICAL REPORT, by J. Raleigh Nelson, 373 pp., published by McGraw-Hill Book Co., 330 West Forty-second Street, New York City, $2.50.

"The purpose of this book is to inspire in both students and practitioners in various technical fields a keener and more intelligent interest in report writing and to give them a greater assurance based on a better understanding of their own mental processes and of the practical procedures involved in the preparation of a well-organized report." If "Writing the Technical Report" does not quite accomplish this purpose it is doubtless because of the enormity of the task, considering the resistance of the technical man to the proper preparation of reports, and the amount of circumlocution apparently necessary to inveigle him into writing a good report.

The first part of the book deals with the design of the report, and the second with some suggestions as to form and style. "Styling" covers hyphenation, abbreviations and the proper use of numbers. One hundred pages are devoted to examples of reports showing by means of annotations the suggestions, elaboration of suggestions and so forth.

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TEMPERATURE, ITS MEASUREMENTS AND CONTROL IN SCIENCE AND INDUSTRY, 1,362 pp., published by Reinhold Publishing Corp., 330 West Forty-second Street, New York City, $11.00.

Comprehensive record of papers presented at the "Symposium on Temperature" held in November 1939 at New York under the auspices of the American Institute of Physics with the cooperation of the National Bureau of Standards, National Research Council, and 12 technical societies. Subjects covered in this fundamental treatise on temperature include temperature and temperature scales; precision thermometry; education; natural sciences; temperature in biology; temperature and its regulation in man; automatic regulation and recording; special applications and methods; general engineering; metals and ceramic industries; oil industries; optical and radiation pyrometry, and thermometric metals and alloys.

The oil man will be directly interested in the chapter of approximately 100 pages devoted to the oil industries and covering such subjects as problems of measuring temperature in production; thermal prospecting; earth temperature in oil fields; temperatures affecting drilling and production; temperature control in welding; critical temperature of mixtures; temperature control in storage, and design of thermocouples for cracking units. Among the authors of sections of the oil industries chapter are Mounce, Terry, Burney, Van Orstrand, French, Halbouty, Hodell, de Florez, Thiele, Kay, Kaasa, Brownscombe, and Larsen. Dr. Gustav Egloff was chairman of the oil-industries committee.

Intermittent Repressuring of Pennsylvania Oil Sands

By PARKE A. DICKEY
Geologist, Pennsylvania Topographic and Geologic Survey*

Dr. Dickey has served as geologist in charge of oil and gas work of the Pennsylvania Topographic and Geologic Survey since 1938. Prior to joining the survey he was with Lago Petroleum Co. during 1930-31 as petrographer at Maracaibo, Venezuela, and with Tropical Oil Co. as field geologist at Barranca Bermeja in Colombia during 1932-38. Dr. Dickey, born in Chicago in March 1909, attended John Hopkins University at Baltimore, Md., receiving a Ph.D. in geology from that university in 1932. The accompanying article, based on a detailed geological study of the Venango fields which the survey is conducting, was read before a meeting sponsored by the Pennsylvania Grade Crude Oil Association at Washington, Pa., on March 27, 1941.

DURING the past 15 years many depleted oil properties in the Venango fields of Pennsylvania have been subjected to air and gas drives, usually with great increase in rate of oil production.[1] The efficient application of air or gas as a driving medium involves many difficult technical problems.

Perhaps the most bothersome of all is how to overcome the tendency of the oil sands to channel or bypass large quantities of gas through a permeable bed, so that little or no gas is transmitted through the less permeable beds in which oil may still remain. Bypassing becomes more serious with time, since the gas cleans the liquid contents out of certain preferential pore spaces or channels, and thereby still further increases their permeability. Some of this increase in permeability may be due to the rearrangement of the liquids in the sand; that is, the films of oil and water are blown until they concentrate on the lee side of the grains, leaving the pore openings unobstructed. It is generally agreed, however, that most of the increase in permeability is due to the actual removal of the liquids.

Numerous measures have been taken to prevent bypassing. It is usual to take cores in the sand and determine the dry permeability of the various units comprising the sand body. Multiple packers are then set so that the gas may be injected at different pressures in different parts of the sand. If a producing well develops an abnormally high gas-oil ratio, showing that it is bypassing, it may be subjected to a back pressure, but this results in greatly diminished production. Another alternative is to stop pumping the well, so that a fluid head is allowed to build up in it. After a time this liquid may enter the sand and plug the bypassing bed, but the beneficial effects are only temporary.

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Intermittent Injection

During the past 5 or 6 years it has become well established that the intermittent injection of gas greatly decreases its tendency to form bypassing channels in the sand. The pressure may be on the input wells only 24 hours out of 48, or 12 hours out of 24. In some cases it was on only 6 hours out of 24. Although considerably smaller quantities of air were thus injected, the production of oil was hardly affected. No data showing the beneficial effects of intermittent repressuring are available, principally due to the inadequacy of records and the fact that two leases are seldom comparable.

It is quite obvious that only gas in motion is effective in driving oil, and that greater volumes of gas will move greater volumes of oil. The fact that a smaller quantity of gas applied intermittently will move as much oil as a larger quantity of gas applied continuously, and at the same time inhibit bypassing, seems to require some explanation.

The fact that intermittent injection of gas inhibits bypassing indicates that during the time when the gas is not being injected, the liquids redistribute themselves in such a manner as to decrease the permeability of the bypassing channel. Therefore, when gas is again applied, more resistance is encountered. The gas is thus able to move out the oil that collected in the channel, and since a higher pressure is developed, it affects the less permeable parts of the sand also.

The redistribution of the liquids may be due to two causes. When the gas stops flowing, the oil and water immediately return from the lee side to their proper positions on the surfaces and at the junctions of the sand grains under the effect of capillary forces.[2] It seems likely also that liquid is moved into the bypassing bed from adjacent less permeable portions of the sand. These may be either above or below, if they are not sealed off by shale, or laterally outside a directional channel.

Take for an example a well into which gas is being injected at 300 lb. per sq. in. and 300 ft. distant from it, a producing well with atmospheric pressure at the sand face. After the gas has been applied for a time, so that a steady flow condition has been attained, a point in the sand midway between the two wells will have a pressure of about 210 lb. per sq. in. This pressure will exist not only in the permeable channel in which most of the gas is traveling, but given sufficient time, will exist also in the less permeable parts of the sand.

Effect of Stopping Injection

When gas is no longer injected, the pressure in the permeable channel will quickly drop nearly to atmospheric, and a sizable pressure drop will exist between the channel and the less permeable places. This will tend to force the oil and water towards the channel. Their presence there materially reduces the effective permeability of the channel, and they are, besides, easily forced towards the producing well. The gas entering the less permeable places will, of course, tend to force the liquids away from the channel, but it will enter more slowly than it will leave. Thus it is more effective escaping than entering.

This action is probably more effective with natural gas than with air, because gas is more soluble in oil. Natural gas under pressure would go into solution, and on release of pressure would form bubbles in the oil as it came out. These would tend to block the pore openings and make it possible for the gas to push the oil instead of

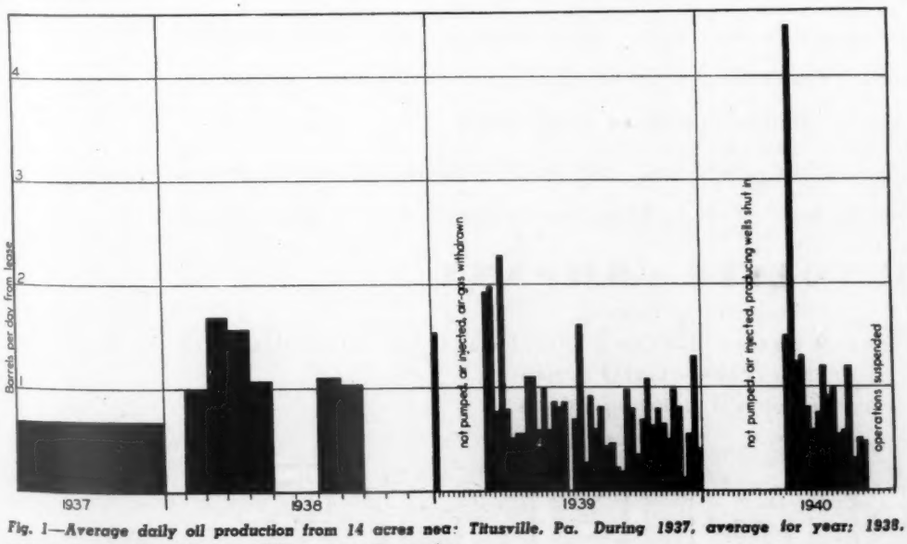

Fig. 1—Average daily oil production from 14 acres near Titusville, Pa. During 1937, average for year; 1938, average by months; 1939 and 1940, average by weeks

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simply whistling by it. As an example of the effectiveness of this action, the oil saturation of a sand was experimentally reduced 60 per cent by the escape of gas contained in it at a pressure of 900 lb. per sq. in.[3]

Cyclic Repressuring

If the foregoing is a correct explanation of the mechanism of intermittent air drive, it would seem that higher pressures, and longer opportunity for the pressures to redistribute themselves, might result in more efficient recovery. Certain field experiments tend to substantiate this theory.

It was found during early experiments with gas drive that increases in production of leases with no input wells could be obtained by applying pressure for a few days to the casing heads of all the producing wells. When the pressure was released the wells responded with increased production which was said to last a month or more.

E. G. Woodruff[4] in 1933 suggested a method of cyclic repressuring with gas, allowing about a month for the pressure to build up.

A true repressuring experiment was tried in one of the western fields. After production had dropped to a very low rate, gas was injected from an extraneous source, and the field pressure raised to about 400 lb. per sq. in. Repressuring was continued for 2 years before the field was reopened. During the next 7 years the field produced under gas drive about 150 bbl. of oil per acre-foot, nearly 60 per cent of the amount recovered prior to repressuring. It seems possible that it was unnecessary to wait 2 years for the pressure to distribute itself in the sand. It also seems likely that if it were financially profitable to do so, another "crop" of oil could be obtained by building up the pressure, although the yield would naturally be smaller than the previous one.

Small-Scale Project

A similar experiment on a much smaller scale was made by the author on a small lease near Titusville. There were nine producing wells and three input wells in an area of about 14 acres. The pay sand is from 10 to 20 ft. thick, with a porosity of about 17 per cent and a saturation of about 26 per cent, but is relatively impermeable. The wells were drilled about 1900, with the exception of one new pressure well, and had been subjected to air drive since about 1935. Two of the air wells took about 5,000 cu. ft. of air daily at 215 lb. per sq. in. and the third took about 20,000 cu. ft. The production of the oil wells was very small, averaging 0.078 bbl. per well per day during 1938 and 0.075 in 1939. This low production was partly due to the depleted state of the sand, but was also due to the very poor mechanical condition of the wells and pumping equipment.

During the months of December 1938 and January and February 1939 the lease was not pumped because the small yield of oil did not repay the cost of pumping and running it in cold weather. The injection of air was continued during this period, and air-gas was collected at the casing heads of the producing wells for use as fuel. While the wells were not pumped a fluid head built up, causing a back pressure at the face of the sand, so that undoubtedly a certain rock pressure was developed in the sand. When the wells were reopened in the spring the production was materially increased for several weeks. Production continued throughout the summer and fall of 1939 at a rate somewhat below that of 1938.

In December 1939 the lease was again not pumping, and on February 19, 1940, at the author's suggestion, the casing heads were shut in, so that air-gas was no longer withdrawn from the producing wells. One producing well already had a slight pressure since its gas line had slugged with water and frozen, but the pressure on the other wells was slightly below atmospheric. Air continued to be injected in the input wells.

The pressures on the casing heads of the producing wells built up rapidly, except for one well that was separated from the others by an impermeable barrier. After the wells were shut in 24 hours the pressures ranged from 20 to 100 lb per sq. in. with an arithmetical average of 46.4 lb. per sq. in. By that time a total of only 2,500 cu. ft. per day at 170 lb. per sq. in. was entering the input wells.

On February 26 the average pressure was 48.2 lb. per sq. in. and the total input was 1,300 cu. ft. per day. The casing-head pressures rose slowly until about March 1, when they averaged 60 lb. per sq. in. Several of the heads were old and leaked air badly. Trouble was experienced with the main compressor plant which had difficulty in supplying the other leases with input air, and it was impossible to obtain an input pressure above 160 lb. per sq. in. By this time no measurable quantity of air was entering the input wells, and the casing-head pressures increased very slowly.

The protracted winter and other causes prevented the opening of the wells until April 11. At that time the average casing-head pressures were 65.4 lb. per sq. in. The gas was drawn off by the collecting lines. One of the wells would not pump, but the others produced 18 bbl. on April 12. On April 15 the lease was pumped again, with two wells not operating, and produced 18 bbl. from seven wells. April 16 and 17 the lease produced 2½ bbl. each day from seven wells, and on April 19, 4⅓ and April 22, 3 1/5 bbl. from six wells. In the first 22 days of pumping the lease produced 66⅔ bbl., although never less than

Copper Chloride Treater Handles Straightrun or Cracked Gasolines

ONE of the major installations completed at the El Dorado, Ark., refinery of the Lion Oil Refining Co. during 1940 was the copper chloride treating plant, which eliminates injurious sulfur and gum-forming compounds either by conversion to harmless forms or by actual removal. This new apparatus, which is extremely simple and compact, consists of two separate systems; one for straightrun material, the other for such cracked products as require somewhat specialized treatment.

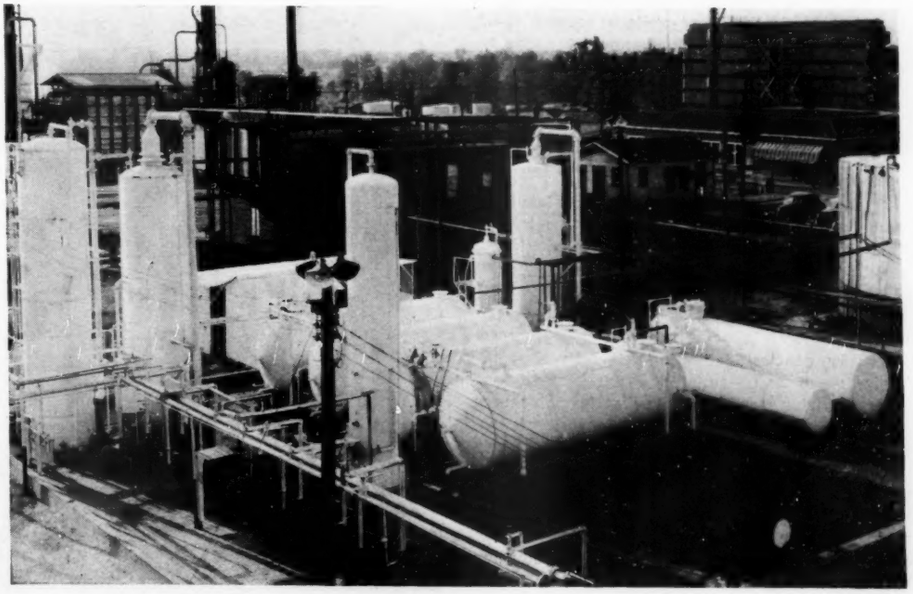
In a number of important ways the plant represents improvement over batch agitator treating. Its simplicity and low consumption of chemicals result in substantially reduced treating costs; the closed system reduces loss of both volume and knock value; furthermore, chemical reactions of the type employed sweeten and stabilize the cracked product without detriment to its octane rating. Since complete rejuvenation of the active constituent is possible, chemicals cost is low. Oxygen for rejuvenation, a minor caustic consumption and a slight loss of active agent through entrainment are the only items in such expense. Finally, a notable increase in lead susceptibility of certain stocks is a result of the treatment.

The salient points of the new unit follow:

Stabilized cracked gasoline is transferred under system pressure through two caustic wash drums, followed by water wash. Thus, removal of hydrogen sulfide and a portion of mercaptan sulfur compounds is effected before passing to storage. Spent caustic from the second wash drum is rejuvenated by heating and stripping with steam in a tower provided for this purpose. The caustic-washed gasoline is passed through a salt drum where moisture and some organic acids combine with the salt and are withdrawn.

Gasoline passes from the salt drum into the main chemical reactor where it is contacted with copper chloride and treated with oxygen for conversion of mercaptan sulfur into more stable compounds. Gasoline thus sweetened passes from the chemical reactor to a water-wash drum for removal of suspended copper chloride before storage. Procedures are the same for both straightrun and cracked gasolines.

The batch agitators replaced by this new treating unit are now utilized for treating straightrun, naphthas and kerosenes.



two and sometimes three wells were not pumping for some reason. For comparison, during the first 21 days of pumping in the spring of 1939 the lease had produced 33 bbl. By the middle of May 1940 the production had fallen to a very low figure, and in July the lease was shut down as not being worth operating until extensive repairs had been made to wells and pumping power.

The plan had been to repressure the lease again as soon as production had returned to normal, but about this time the main compressor plant was down over a week, and it was considered more important to reestablish the pressure on the other leases than to continue the experiment.

The production of this lease by weeks is shown in Fig. 1. The following facts are clearly indicated:

When gas was recycled continuously and the lease pumped two or three times a week the average production was 0.67 bbl. per day. After standing for 8 weeks with the gas continuously injected and withdrawn but the wells not pumped, the production averaged 1.75 bbl. per day for the first 4 weeks. The increase was doubtless due to a rock pressure developed in the sand by the fluid heads in the wells. After standing for 14 weeks, during 6 of which the casing heads were shut in and a greater rock pressure built up in the sand, the lease produced 2.2 bbl. per day for the first 4 weeks. In 1939 the lease produced 81.4 bbl. in the first 10 weeks of pumping and 51.9 bbl. in the next 10 weeks. In 1940 the lease produced 98.7 bbl. in the first 10 weeks of pumping.

In the author's opinion, if 200 or 250 lb. per sq. in. had been available during the period of repressuring, 2 to 4 weeks would have been sufficient to build up the rock pressure, and if air had been injected in all the wells, both producing and input, little harm would have been done and the rock pressure would have been built up in still less time.

Method of Improving Drive

In view of the above, it is suggested that under certain circumstances, the operation of air or gas drive might be improved by the following procedure: (a) Shut in the casing heads of the producing wells so that no gas is withdrawn, and either continue to inject gas in the input wells, or turn the pressure directly on all the wells by means of the gas gathering lines. (b) After a period of 2 to 4 weeks, withdraw the gas from the producing wells and start pumping. Continue to inject gas in the input wells to cause a steady current in the permeable channels towards the producing wells. When the oil production has fallen to normal, which may be in 4 or 5 weeks, repeat the procedure. It seems likely that enough additional oil will be recovered to more than compensate for the lack of production while the pressure was being built up.

It is obvious that gas entering and leaving a sand by the same path, under simple expansion and contraction, will be less effective than a steady drive. However, near the end of the profitable operation of a gas-drive development, it is certain that a great deal of physically recoverable oil will be left in parts of the sand that were relatively unaffected by the drive. Even at the beginning of an operation it is obviously impossible to drive gas continuously through every isolated lens of hard sand. The bypassing channels which will have developed, and nearly ruined the beneficial effect of the gas, could, by the method proposed above, actually be utilized in the extraction of the remaining oil. Multiple packers would be unnecessary, and driving vast quantities of gas to no avail through already dry beds would largely be eliminated. The ultimate recovery might be materially increased, since the cyclic method seems to be the only way to develop pressure in the relatively impermeable parts of the sand remote from the bypassing channels.

Practical difficulties in the application of this method would be serious on some properties. There might be danger of loss of pressure and oil at lease boundaries. The casing heads and gathering lines of all the wells would have to be put in good condition. Abandoned wells that had been improperly plugged might allow gas to escape. Stray sands might take a good deal of gas, but would not actually lose any. Gas lock in the valves might cause some trouble in pumping.

On the other hand none of these difficulties are insuperable, and the cost of experimenting with this method would be very small. Except for putting the casing heads in good shape no modification of customary equipment would be necessary. In the Venango fields pressure moves rather slowly, except in certain pebbly sands, and it would usually be possible to divide a lease in halves or thirds, so that one part would be repressuring while others were producing.

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SAFETY - Signs Warn Visitors of Fire Danger

THE threat of someone striking a match and igniting the fumes in a pipe-line station or a gasoline plant preys on the minds of operators and workmen alike. There are numerous ways for a fire to get started with which all are concerned but they realize that they cannot afford to overlook the danger of the human element.

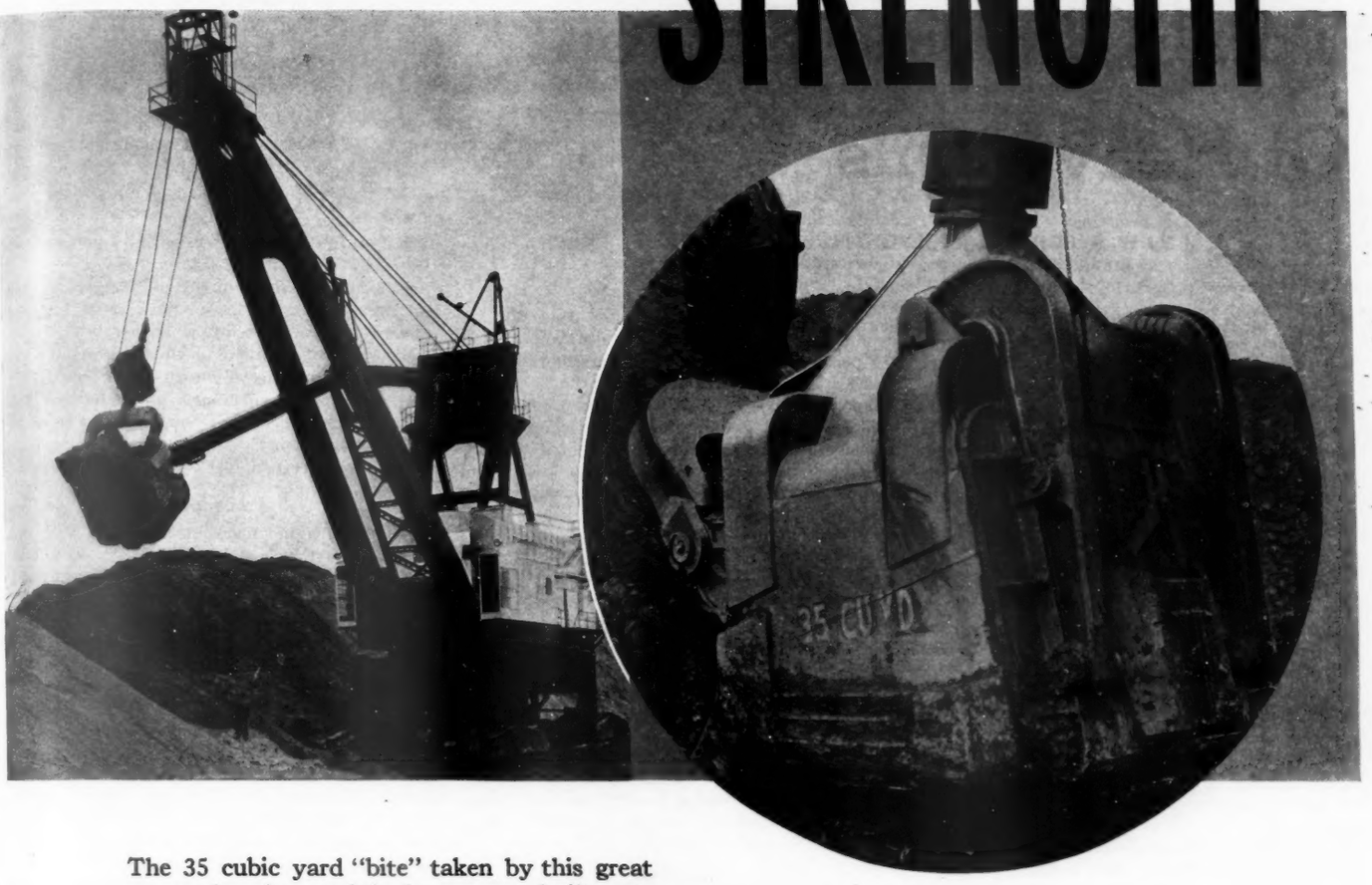
Operators of some larger plants are so fearful of the carelessness of workmen and visitors that they insist on all matches being left at office before permitting entry. The workmen are glad to comply with this regulation as they realize that it is for their own protection and most of them have seen friends and coworkers destroyed in flames when other plants burned.

The workmen also keep close watch on visitors to see that they do not attempt to smoke while in such plants. Evidence of this is seen when a visitor puts a cigaret in his mouth, for a workman will remind him, sometimes rather pointedly, that no smoking is permitted. Assurance that the visitor is not going to smoke doesn't mean anything until he puts the cigaret back in his pocket where he cannot unconsciously light it.

An interesting sidelight on injuries which can result from matches and smoking was reported recently. A pipe-line workman with oil-soaked clothes was eating with some fellow workmen when one of them started to light his after-lunch cigaret. The match head flew off and lit on the oil-soaked clothing and ignited it. Fortunately the workman was not fatally burned but he did suffer some painful injuries.

The accompanying photo shows the method used at a pipe-line pump station to remind all about to enter the plant that there is danger of fire. The sign is made from tank steel and there is one placed at each door. A sign on the inside carries the same message. The men employed at the station realize the danger and they want all approaching the building to keep in mind the hazards of explosions and fires.

STEEL CASTINGS CONTRIBUTE STRENGTH



The 35 cubic yard "bite" taken by this great power shovel, one of the largest ever built, puts tremendous strain on important working parts.

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STEEL CASTINGS

Method for Determining Total Chloride Content Of Heavy Oils

By W. A. SCHULZE, J. P. LYON, JR., and L. C. MORRIS
Phillips Petroleum Co., Bartlesville, Okla.

HEAVY oils such as crude oils or still bottoms from refinery operations quite frequently contain chlorine in the form of organic chlorine compounds dissolved in the oil as well as the more familiar inorganic chloride salts present in either solid or aqueous solution form. The chloride content of such oils is of major interest from the standpoint of the potential corrosion of refinery equipment since all the chlorides present in an oil may be corrosive to metals or may be converted into corrosive form at some stage in processing operations.

The commonly used methods[1,2,3] for the determination of the chloride content of crude oils in which an analysis for the chloride ion content of an aqueous extract of the oil sample is made will not determine the organic chlorine present. The procedure which has been developed makes possible a determination of the amount of both organic and inorganic chlorine present. The difference between the total chloride content and the inorganic chloride content obtained by extraction methods is a measure of the organic chloride content.

Essentially the procedure consists of (1) burning the oil sample mixed with pelleted chloride-free carbon black; (2) absorbing the gaseous products of combustion in an alkaline solution to which is added the residue remaining after combustion, and (3) titrimetric determination of the chloride content of the solution. The concentration of certain other inorganic constituents may also be determined if desired by analysis of the aqueous solution containing acidic combustion products and the inorganic residue.

This method is applicable to heavy oils such as crude oil, high-boiling distillates, fuel oil, and residual stocks containing generally from 0.001 to 0.1 per cent or more by weight of chlorine. Such heavy stocks are not adapted to the lamp combustion methods applied to easily vaporizable distillates such as gasoline for the determination of chlorine and sulfur. Further, the total chloride content of the heavy oils is relatively low so that neither the bomb-combustion methods using small samples nor lamp-combustion methods using samples greatly diluted with a volatile solvent are entirely satisfactory.

By the procedure to be described a suitable weight of a sample of a crude or other heavy oil is converted into volatile products by a succession of distillation, cracking, and ashing steps under controlled conditions which insure the uniform combustion of the sample. The carbon-black adsorbent is useful in controlling the evolution of hydrocarbon vapors to rates consistent with uniform and complete combustion, and the ashing operation followed by transfer of the ash to the absorbent solution makes possible the determination of nonvolatilized inorganic chloride compounds.

Apparatus

In Figs 1, 2, and 3 the apparatus used for burning the oil samples is shown assembled. The various items are listed in the following outline:

1. Two cylinders of oxygen with pressure regulators capable of delivering oxygen at 0-10 lb. per sq. in.

2. One cylinder of carbon dioxide with pressure regulator capable of delivering gas at 0-10 lb. per sq. in.

3. One cylinder of chemically pure propane with pressure regulator capable of delivering gas at 0-10 lb. per sq. in.

4. Three capillary flow meters. One for carbon dioxide with a range of 0.75-3 l.p.m., one for oxygen with a range of 0.75-1.5 l.p.m., one for mixed carbon dioxide and oxygen with a range of 0.25-1 l.p.m.

5. Pyrex glass gas-mixing chamber (4 cm. by 25 cm.).

6. Clear-fused quartz combustion tube (16 mm. i.d. by 80 cm.) with an interchangeable ground-glass joint sealed at each end.

7. Pyrex glass burner and chimney (see Figs. 2 and 3).

8. Two Pyrex glass filters with 0-2 porous disks (see Fig. 2). One spray trap.

9. A high-potential spark coil such as is used in testing leaks in vacuum lines, to be attached to the ignition wires of the burner.

10. Standard solutions of silver nitrate (0.02N) and ammonium thiocyanate (0.02N).

11. Appropriate volumetric apparatus for Volhard titrations, including a burette (0-10 cc., with 0.05 cc. graduations).

12. Pelleted carbon black free from chlorides.

Procedure

The combustion tube is first charged with the oil sample and carbon-black carrier in the following manner: A small plug of loosely compressed filter paper is placed in the end of the quartz tube which is to be nearest the burner. A loosely fitting alundum disk is then placed on top of the filter-paper plug. The tube is placed in a vertical position with the plug at the bottom. About 13 ml. of pelleted carbon black is poured into the tube followed by 5 ml. of the oil sample from a calibrated pipette. Ten milliliters of carbon black is added followed by another 5-ml. portion of oil sample. This procedure is repeated until a sample of the desired weight has been placed in the combustion tube. The sample weight is usually chosen in accordance with the expected total chlorine content to represent a minimum of 5 mg. of chlorine.

The apparatus is then assembled as shown in Figs. 1 and 2, leaving the screw clamp on the line between the mixing chamber and the burner completely open. To prevent condensation of hydrocarbons in that part of the system between the tube filling and the burner flame, the entire tube from the filter-paper plug to the base of the burner chimney is wrapped with an electrical

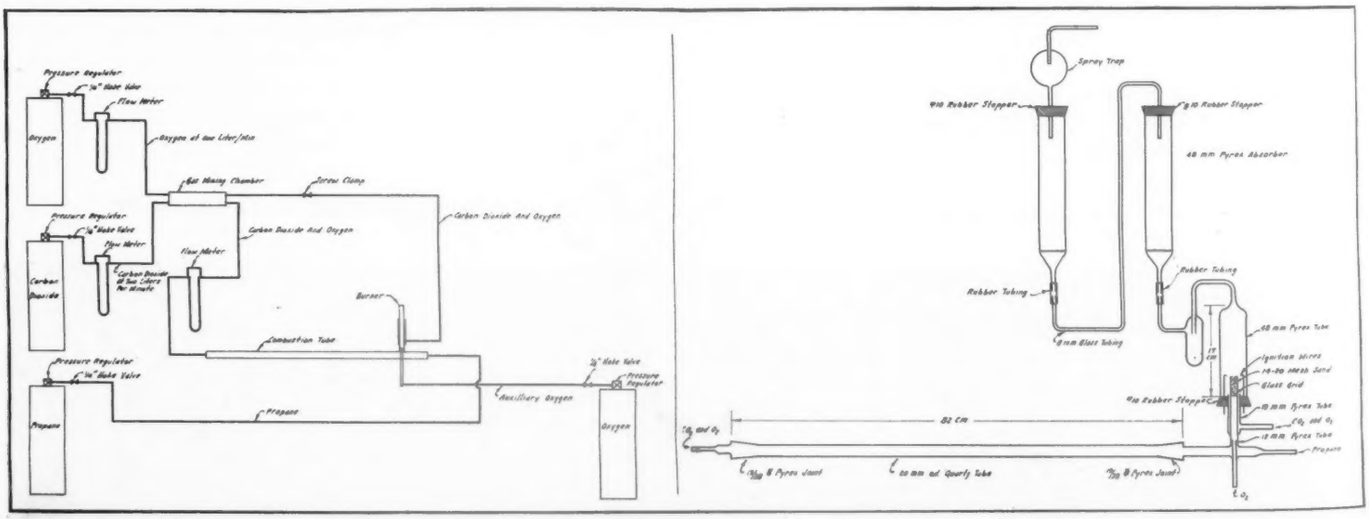

Fig. 1 (left)—Flow diagram showing connections for combustion tube and burner used in determination of total chloride content of heavy oils. Fig. 2 (right)—Diagram of apparatus used in the method

heating coil and is kept hot during the entire combustion.

With the screw clamp open a mixture of one-third oxygen and two-thirds carbon dioxide is passed through the burner at the rate of approximately 3.2 l.p.m. The pressure drop through the combustion tube should prevent any gas from flowing through the tube as long as the screw clamp is left open. An explosion screen, wire or glass, is placed between the operator and the apparatus. About 35 ml. of 1N sodium-bicarbonate solution is placed in each absorber and supported above the fritted glass plates by the gas flow.

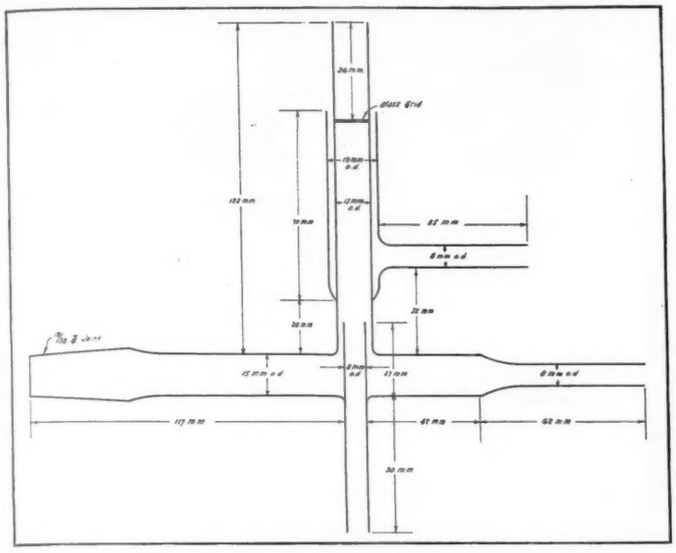

Fig. 3—Details of burner used in the procedure

After the oxygen-carbon dioxide flow has been adjusted a spark is passed continuously across the burner electrodes and sufficient propane is admitted to the burner to produce a small flame. In this connection it may be found desirable to place a clamp temporarily on the carbon dioxide-oxygen gas line just before it enters the combustion tube. This clamp will keep propane from diffusing back into the combustion tube while the gas mixture in the burner is being ignited.

When a small propane flame has been produced in the burner the screw clamp on the main gas line is tightened to force a portion of the carbon dioxide-oxygen mixture through the flow meter to the inlet of the combustion tube. The screw clamp is tightened just enough to force approximately ⅜ l.p.m. through the combustion tube with the remainder of the combustion atmosphere passing through the burner as before. The burner flame is then adjusted to a height of 2-3 cm. The height and stability of the flame can be regulated by making changes in the amount of gas passing through the combustion tube and in the amount of propane fed to the burner. When a quiet uniform flame has been produced the ignition spark may be removed.

After the flame has been adjusted so that it is burning evenly the combustion tube is gently heated to drive out the light constituents of the oil sample. These lighter materials are burned together with the propane in the burner flame. The preliminary heating must be done slowly, great care being taken to avoid localized heating. If the preliminary heating is done too rapidly more hydrocarbon vapors will be fed to the burner than can be burned, causing a sooty flame and consequently passage of incompletely burned hydrocarbons.

After the light hydrocarbons in the oil sample have been volatilized and burned, the residual mass in the combustion tube is ignited by localized external heating beginning at a point close to the filter-paper plug. As soon as a small increment of the mass is ignited, sufficient auxiliary oxygen is admitted directly to the burner to produce an even clean flame in the presence of increased amounts of combustible gases and combustion products. Addition of too much oxygen at this point will produce a serious backlash of the flame into the combustion tube. Such a backlash is guarded against by the layer of sand supported on a glass grid at the tip of the burner tube as indicated in Fig. 2. Without further external heating at this point the combustion in the tube will proceed through the sample mass in a direction countercurrent to the gas stream. This initial combustion will consume very little of the carbon black but will burn most of the remaining oil.

Toward the end of the initial combustion a burner is placed directly beneath the tube at the point near the plug where combustion began and sufficient heat is applied to ignite the carbon-black filling. As the carbon black is consumed the burner is moved slowly along away from the plug until all of the carbon black is burned. Finally, the small amount of carbon black adjacent to the plug and the filter paper are burned.

At completion of the combustion, the burner flame is put out by discontinuing the flow of propane, the liquid from the two absorbers is removed and combined and the carbon dioxide-oxygen gas flow is stopped. The entire apparatus, including absorbers, spray trap, chimney, burner, and combustion tube, is rinsed with distilled water and the rinse water added to the liquid from the absorbers in a suitable container.

The resulting total alkaline solution is concentrated by evaporation to about 30 ml., then made slightly acid with dilute nitric acid, and heated gently to expel carbon dioxide and sulfur dioxide. An excess of 0.02N silver nitrate (usually 10-30 ml.) is then added and the solution is warmed to coagulate the silver chloride precipitate which is filtered off. The filtrate is titrated with 0.02N ammonium thiocyanate using ferric alum indicator to determine the excess silver.

Calculations

Since 1 ml. of 0.02N $AgNO_3$ is equivalent to 0.709 mg. of chlorine the difference between the volumes of silver nitrate and ammonium thiocyanate multiplied by 0.709 gives the chloride content in milligrams. This value is then converted to the weight per cent of chlorides in the oil sample by the following equation:

$$\frac{(\text{cc. } 0.2N\ AgNO_3 - \text{cc. } 0.02N\ NH_4CNS)\ 0.709}{10 \times \text{grams of oil burned}} = \text{wt. per cent chlorides.}$$

Discussion

As a result of the process described, the halogens present in the crude oil appear in the alkaline solution as salts of the halogen acids. A small amount of sodium thiosulfate and/or sodium sulfite may be added to the absorbing solution if any tendency toward oxidation of the halogen appears. The alkaline solution of the combustion products may contain alkali and alkaline-earth sulfates, carbonates, sulfites, and possibly phosphates. The carbon dioxide must be expelled by acidification followed by boiling and sulfur dioxide will also be expelled at this time. If phosphates are present, they must be removed prior to the chloride determination. Sulfates in the concentrations present do not interfere seriously with the Volhard titration.

Results

Results obtained by application of the method to heavy oils containing known quantities of organic and inorganic chlorine compounds have indicated an absolute accuracy of ±2.5 per cent when a sample equivalent to 5-15 mg. of chlorine is analyzed. The accompanying table shows typical results obtained by analysis of known and unknown oil samples.

Sample—	Calculated total chlorides (mg.)	Found total chlorides (mg.)	Pounds of chlorides per 1,000 bbl.
Mineral oil + 50 mg. chlorohydroquinone	12.27	12.12	....
Mineral oil + 50 mg. chlorohydroquinone	12.27	12.17	....
Mineral oil + 20 mg. chlorohydroquinone	4.91	4.93	....
Mineral oil + 20 mg. chlorohydroquinone	4.91	4.80	....
Mixed Kansas crude	....	1.92	33.7
Mixed Kansas crude	....	1.89	33.4
Gray Co. (Texas) crude	....	6.09	133.5
Gray Co. (Texas) crude	....	6.08	133.2
Western Kansas crude	....	1.42	24.8
Western Kansas crude	....	1.50	26.2

The inorganic chloride contents of the above-listed crude oils were determined by aqueous extraction methods and the organic and inorganic chloride contents of these oils had the following average values:

	Total chlorides lb./1,000 bbl.	Inorganic chlorides lb./1,000 bbl.	Organic chlorides lb./1,000 bbl.
Gray Co. (Texas) crude	133.3	130.0	3.3
Western Kansas crude	25.5	19.9	5.6
Mixed Kansas crude	33.5	27.0	6.5

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3. Charles M. Blair Jr., "Determination of Inorganic Salts in Crude Oils," Ind. Eng. Chem., Anal. Ed., 10 (4) 207 (1938).

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Handbook of Welded Steel Tubing Published

Improvements and refinements which have been made in the processes employed for manufacturing welded carbon and alloy-steel tubing during the past 10 years have resulted in the adoption of this material for structural uses in many large industries. The Handbook of Welded Steel Tubing, published by the Formed Steel Tube Institute, has been published to furnish designing engineers with full information regarding standard sizes and properties of welded tubing.

The book is exclusively devoted to those grades of welded tubing which can be figured as having a solid wall structure with no discontinuity or variation in physical properties occurring in the area affected by the welding operation during manufacture. Standard sizes, together with commercial tolerances for roundness, wall thickness, straightness, etc., are tabulated for various grades of welded tubes.

The 86-page book is of pocket size in a durable loose-leaf binding. Copies can be obtained from Formed Steel Tube Institute, 1621 Euclid Avenue, Cleveland, Ohio. Price, $1.

Rathole Digger for Jackknife Derrick

Digging of ratholes presents a particularly tricky problem on the new jackknife or open-front derricks as it is located outside of the derrick. A variation of the familiar rathole digger is used by one drilling contractor to cut down the time needed to perform this task. It consists of a double-sprocket shaft mounted on a steel frame; one sprocket is driven by the hoist rotary sprocket and the other connects to rotary-drive sprocket. One end of the rotary table is supported by the walk and the other has blocking under it.

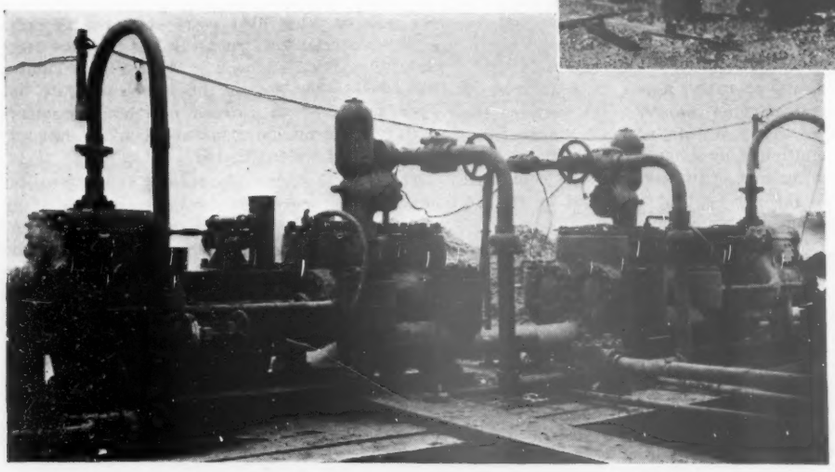
Steel Bases for Pumping Derricks

A worth-while saving may be made in the foundations cost of pumping derricks by the use of the idea illustrated in the photograph. A 24-in. square of 1-in. steel plate is welded across the top of two 27-in. lengths of 20-in. I-beam material. Smaller sections of lighter I-beam are welded across the end openings of the larger ones for bracing strength. This small steel derrick leg steel base then is anchored to the concrete floor. The principal advantages of the use of such steel bases over the concrete type lie in their high salvage value. Also important is the fact that the bases may be built in the company shop during periods of slackened work.

Operating Ideas

U-Shaped Bends on Pump Lines

Rigging up of pumps is simplified by one Texas operator who has bent the steam lines into a U-shape. Unions at the manifold and on top of the steam chest can be quickly made up or broken out. The throttle valve is on the manifold side of the turn. The mud discharge connections include bends where they drop to ground level for connecting into the manifold switching valve.



Kelly Protected by Casing Joint

Kelly joints of the smaller and more limber sizes are more easily moved from one location to another by slipping them into joints of used lightweight casing. As the kelly is broken off the drill string, it is lifted up into the derrick and dropped into the belled end of a casing joint lashed in a vertical position to the side of the derrick. The joint is then rolled out on the walk with the pipe buggy. Bends and kinks, as well as minor scratches or dents are minimized by this practice. The small amount of extra time involved is more than offset by the increased useful life.

Digests of A. P. I. Papers

Presented before the Mid-Continent district, Division of Production, at its spring meeting in Amarillo, Tex., March 21-22, 1941

Gel Cements and Their Application in Oil-Well Cementing Operations

CEDRIC WILLSON (Trinity Portland Cement Co.)

BENTONITE, or colloidal clay, was first used as an admixture with cement and water in oil-well cementing operations about 10 years ago. Since that time it has been used to a greater or lesser extent in almost every section of the country as a possible solution for certain difficulties or in an attempt to secure satisfactory jobs at reduced costs. Results have varied and it is thought that a more thorough knowledge of the properties and behavior of bentonite cement slurries will aid operators in determining whether their use should result in more satisfactory cement jobs.

Mixing bentonite and cement.

A thorough dispersion in the mixing water prior to adding the cement produces a greater effect than a dry premix of cement and bentonite, the ratio being about 1 to 2. This economy cannot be realized because of the difficulty of mixing the water and bentonite in the field. Premixing may be done at the time of manufacture or by adding the bentonite at the hopper. An automatic feeding device should be used as manual addition results in widely varying effectiveness.

Effect of bentonite.

For every cement there is a water-cement ratio at which the cement stays in suspension until the initial set has taken place and the set or hardened volume of the slurry is the same as the fluid volume. Mixing water in excess of this amount ("free water") will result in sedimentation of the cement, the rate of sedimentation being dependent on the water-cement ratio. If bentonite is dispersed in the water, the cement mixed with it will remain in suspension a much longer time, the rate of sedimentation being retarded in proportion to the viscosity of the colloidal gel in which the cement is mixed.

In slurries containing free water, there is a percentage of bentonite for every cement and water-cement ratio which will hold the cement in suspension until the initial set has taken place and the set or hardened volume is the same as the fluid volume.

A given volume of cement mixed with a volume of gel will have a greater plasticity and "viscosity" than when mixed with the same amount of water and this increase will be in proportion to the viscosity of the gel. The free water incorporated in the gel will offer more resistance to being forced out of the slurry, which means that the water loss in permeable or porous bodies is less for gel cement than it is for neat cement.

Summarizing, the addition of bentonite to portland-cement slurry will (1) tend to hold cement in suspension until initial set occurs, (2) increase its plasticity and "viscosity," (3) reduce the loss of free water when slurry under pressure contacts porous or permeable bodies, (4) impart a thixotropic property to the slurry.

It should be noted that the addition of bentonite is a function of the mixing water rather than the cement. The setting time of gel-cement slurries is somewhat less than neat slurries of the same water-cement ratios. The addition of 2 per cent bentonite to any portland cement will usually decrease the setting time about 5 to 8 per cent and the addition of 4 per cent bentonite will result in a decrease of from 10 to 15 per cent. An increase in the water-cement ratio in a gel-cement slurry will produce a slurry having a longer setting time but the same consistency as a neat cement. A 4 per cent gel-cement slurry having the same consistency as a 5-gal. per sack 16-lb. neat slurry will have a water-cement ratio of 8.5 gal. per sack, a weight of 13.8 lb. per gal. and the setting time will be increased 35 per cent.

With 4 per cent gel cement the pumpable time is usually decreased from 15 to 20 per cent. If additional mixing water is added with the bentonite the pumpable time will be increased as compared to neat slurry.

Strength and permeability.

For a given amount of cement, the strength of the set slurry will decrease as the quantity of mixing water is increased and the addition of bentonite will have no direct effect on this relationship. Strength and density are closely related and a low-water-cement-ratio slurry will have low permeability and a high-water-cement-ratio slurry will be porous and permeable. Addition of bentonite will not directly affect this relationship.

Effect of gel cements.

Principal purposes of cementing are to shut off water behind the pipe, provide a reinforcement, eliminate hydrostatic head behind casing, prevent movement of casing, prevent corrosion and protect shallow oil, gas or water sands. A continuous body of uniform homogeneous slurry is necessary for a successful job and sedimentation must be prevented if such a body is to result. This is one function of gel-cement, particularly where it is desired to increase the water-cement ratio. The channeling of cement around the casing can be prevented by using a more viscous slurry and obtaining a plug-like flow. The increase in viscosity through the addition of bentonite will increase the friction between the pipe and slurry when the casing is rotated while displacing the slurry.

At a given pressure there will be less water lost to a permeable formation from a gel-cement slurry than from a neat slurry having the same water-cement ratio and a more satisfactory fill-up will be obtained. In both of the last two cases, the cement-water ratio is maintained while building up the viscosity through the addition of bentonite.

Other applications of bentonite to cement slurries include the prevention of sedimentation in slow-setting cements used in a small annular space and the squeeze cementing of porous formations. In the latter case it is the thixotropic quality imparted by the bentonites which is particularly beneficial.

In selecting the proper percentage of bentonite, the best procedure seems to be to select the strength desired, which will automatically set the percentage required to eliminate sedimentation. If an increase in viscosity is desired, the pumpability and setting time will be the controlling factor. Probably 4 per cent bentonite is the upper safe limit and ordinarily 2 per cent will be sufficient, while in some cases as little as 1 per cent may be all that is permitted.

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Application of Gas Lift to Modern Production Methods

E. D. WILDE (The Gulberson Co.)

THE primary reason for selecting gas lift as a production means is to increase the production to the greatest possible extent; a second reason is to eliminate rod breakage in crooked holes, and a third reason is the desire for a cheaper method of lifting oil. The basis for the correct application of any form of gas lift is such well data as the estimated life of the well, static and drawdown levels, productivity index and type of fluid to be lifted.

There are also the limitations and capabilities of the equipment under consideration. The general various types are (1) straight gas-lift and port collars, (2) plunger lift, (3) automatic or "flow" valves, and (4) surface-controlled valves.

Application of gas lift to well data.

Automatic valves are actuated by the differential between the weight of the fluid column and the input gas pressure. Surface-controlled valves are actuated either by mechanical means extending from the surface or by variations at the surface of gas-input pressure.

Well characteristics influencing the design and performance of a gas-lift installation are (1) reservoir pressure, (2) productivity index, (3) formation gas-oil ratio, (4) per cent water, (5) depth, (6) size and condition of casing, and (7) size and condition of the lines.

When the fluid level in the well is at or near the surface, the distance of the top valve from the surface is directly dependent on the gas pressure for kickoff. The top valve can be located by the formula:

$$H_1 = \frac{P_1 - P_2}{W}$$

Where H_1 = distance in feet from surface to top valve; P_1 = gas pressure available for kickoff; P_2 = desired differential across valve ports, generally around 50 lb.; and W = weight of fluid in pounds per square inch per foot of height.

Where the fluid level is lower than the above, the following formula can be used to determine the position of the top valve:

$$H_2 = H_s + \frac{P_1 - P_2}{W(R+1)}$$

Where H_2 = feet from surface to top valve; H_s = feet from surface to fluid level; and R = ratio of annulus to tubing area.

Spacing of the remaining valves is found by

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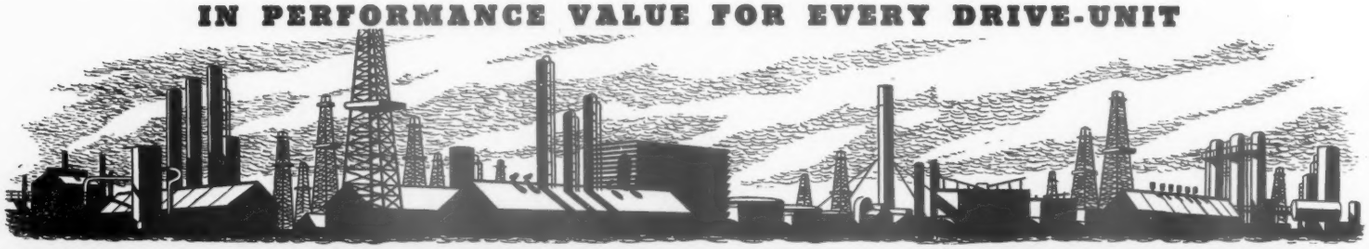

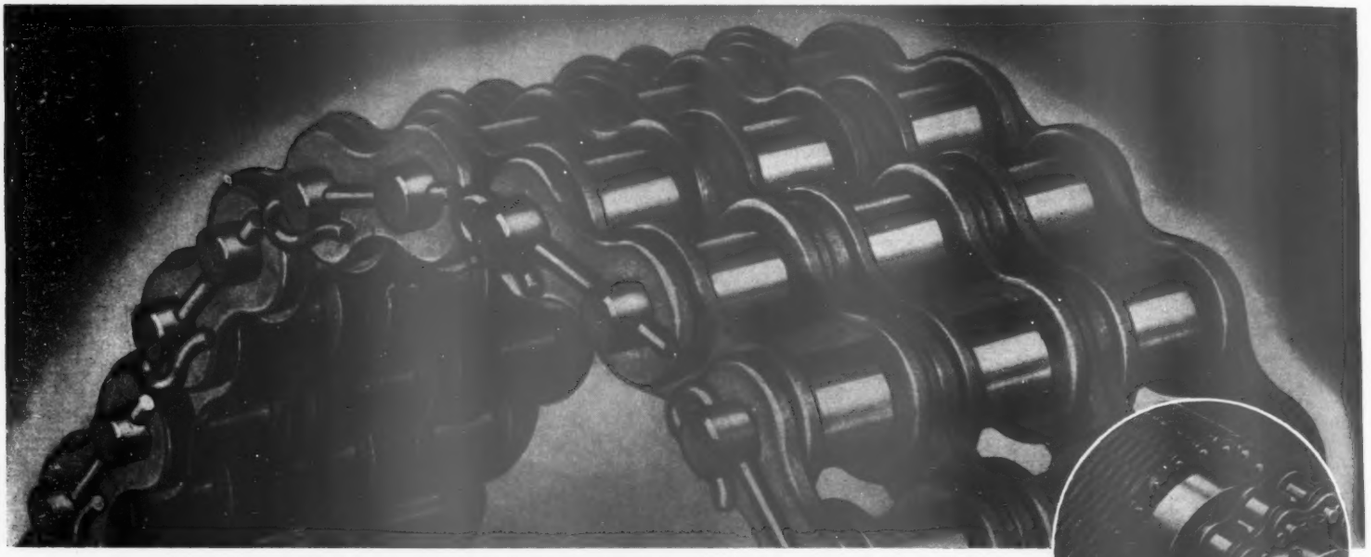

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dividing the set reopening differential pressure of the valve by the maximum gradient of the fluid. The equation is:

$$S = \frac{P_d}{W}$$

Where S = feet between valves; P_d = set reopening differential of valve. The value of W should be that of the heaviest fluid to be handled.

The depth at which the lowest valve is set is dependent on the production required. To predict accurately prior to installation the volume that will be produced, it is necessary to know the productivity index of the well. In some wells with either a low fluid level or a low productivity, it may be impossible to get the bottom-hole-pressure drop requisite to the required rate of flow. In such cases the use of a packer will permit much greater production.

The surface-controlled valves is dependent mainly upon the input gas pressure as the opening and closing action of the valve is manipulated from the surface rather than depending upon a column of fluid in the tubing. This being the case, the maximum spacing that can be used may be expressed as follows:

$$S = \frac{P_1 - P_2}{W}$$

Where S = the maximum spacing between valves.

With surface-controlled valves, a sufficient number of valves are run in the string to serve the economic life of the installation. Operation from different levels will give various rates of flow.

With automatic valves, the control of flow may be varied within certain limits by changing the input gas pressures. A more definite method uses a choke in the tubing below the lowest valve.

The input-gas pressure does not maintain a higher back pressure for a given rate of flow than other methods of production. The back pressure on the sand is the same regardless of the method used.

Low fluid levels and stripper wells.

Where the greatest possible production must be secured, as in depleting a well, the bottom-hole-pressure drop at the sand face must be the maximum obtainable. To accomplish this, a packer and subpacker assembly must be employed. With this type of equipment the surface-controlled valve produces better results. Automatic valves have been modified to operate with extremely low fluid levels, but none have given the results expected. One well has been produced down to less than 3 bbl. per day with a surface-controlled valve, which may be cited as an example of the stripper ability of this method.

●

Gas-Well Acidizing in the Texas Panhandle

GILBERT L. LEACH (Dowell, Inc.)

ACIDIZING is an indispensable step in the completion of a gas well in the Texas Panhandle and probably few investments pay out so quickly. The Texas Panhandle field has a length of 124 miles and an average width of 20 miles and covers nearly 1,500,000 acres of gas reserves; there are also 250,000 acres of oil-productive territory. Over 6 trillion cubic feet of gas and 350 million barrels of oil have been recovered. Under existing rates of withdrawal the reserves should last another 35 years.

The problem of acidizing in the Panhandle is far from simple due to the impure limestone, dolomite and dolomitic limestone, each of which responds differently. These are composed of complex magnesium-calcium carbonates with varying amounts of silicates, sand, granite, chert, shale, iron, alumina and frequently large quantities of gypsum, anhydrite and selenite and react much more slowly. Many of these compounds are soluble in fresh acid but precipitate out when the acid is partially spent. Some precipitates form a bulky sludge which will contribute to the plugging of the pores.

Addition agents.

The more important improvements involving addition agents for acid having particular application to Panhandle acidizing are: (1) An intensifier to increase the rate of reaction of acid on slowly soluble dolomites. (2) retarding agents to slow down the rate of reaction and allow for further penetration away from the well bore. (3) Low surface tension and wetting agents to decrease the resistance to flow of both fresh acid and spent-acid solution. (4) Stabilizers to reduce secondary precipitation of iron and aluminum. (5) Inhibitors to eliminate corrosion of the casing and tubing.

Use compressors.

First treatments in the Panhandle were with small quantities of acid due to the low rock pressures (around 400 lb. per sq. in.). The method today employs a compressor which provides a clean, cheap, rapid and convenient means of displacing the acid into the formation. In one recent case where a compressor was employed a well increased from 18,000,000 to 225,000,000 cu. ft. per day.

In dolomite or siliceous lime best results are obtained if the acid is kept moving. A comparatively light movement prior to reversal of pressure will prevent much of the settling. Size of the compressors used has increased to those handling up to 80,000 cu. ft. per hour with intake pressures of 300 to 400 lb. and discharge pressure up to 2,500 lb. per sq. in. Such capacities permit the clearing of a well bore of acid in a matter of minutes.

Treatments.

Treatments are tailor-made for each well after examinations of cuttings, cores and laboratory tests. Except in unusual cases, gas-well treatments are made down the casing. The well is first blown to clear it of fluid after which the first stage (generally 1,000 gal.) is started. Displacement is continued until a pressure break is experienced and the fluid level, measured with a float, remains constant. After 1 hour or less, depending on the type of acid and auxiliary chemicals, the well is allowed to clean itself.

The first stage generally serves to clean the pore space immediately around the hole. The second treatment is designed after studying the complete record and all the information obtained during the making of the first treatment. The subsequent stages generally resemble the first except the amount of acid used may vary from 2,000 to 10,000 gal. Generally the rate of injection is around 100 gal. per minute with one pump but two to three pumps are sometimes used. There are several advantages to a fast rate of injection.

Displacement of the acid by gas has several advantages; a minimum quantity of fluid is used giving less chance of leaving fluid in the formation at the conclusion of the treatment, there is a more rapid removal of treating fluid, the portion of the formation taking the acid can be identified with a float and it is unnecessary to haul water or other fluid to the well to displace the acid.

In many wells a selective treatment has been used to open up less permeable strata which are good reservoirs. The acid jet gun may be used as a preliminary treatment or all acid forced against and into the formation in this manner. Hot acid has an increased rate of reaction on soluble material, the rate on dolomite being doubled with a rise from 20 to 40° F., the pressure remaining constant.

Magnesium metal when placed in contact with 15 per cent hydrochloric acid will react with the liberation of 8,400 B.t.u. for each pound of magnesium. This treatment is particularly effective where it is desired to open a lower zone. One method is to run 30 lb. of magnesium sticks into the well in a wire basket as soon as the float shows the acid is no longer entering the formation. The basket containing the magnesium is worked up and down for 30 minutes with a temperature in the neighborhood of 200° F. resulting. The basket is then pulled from the hole and the well opened and vented into the air.

In some cases the lower zone is shut off by a quantity of gelatinous compound containing light, inert cellulose flakes which is pumped down ahead of the acid. Bacteria mixed with the gelatinous compound reduce it to a clear fluid in a specified time and facilitate its removal along with the spent acid.

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Installation and Maintenance Of Oil-Field Tanks

G. RAYMOND (Black, Sivalls & Bryson, Inc.)

TANK batteries should be selected and installed on sound engineering practice rather than following blind custom. Many companies are looking into this matter to see how they can reduce their installation and operating costs.

Corrosion.

Corrosion is one of the most important factors to consider in selecting the type of tank. Thin bolted or welded tanks may be selected when there is assurance that the oil will stay sweet and entirely free from salt water for some time. Thin bolted tanks have served satisfactorily for 15 years in some cases, but in others they have been eaten through in 18 days. If corrosion is anticipated, galvanized steel or thick-walled welded or pressuretight wood tanks may be the most economical. Wooden tanks are now built with a layer of insulating materials between the pressure deck and sun deck, making it unnecessary to keep water on the roof of the tank.

Economical size of tanks.

The high 500-bbl. tank costs 32 per cent less per usable barrel of capacity than a 250-bbl. tank and costs 20 per cent less than a low 500-bbl. tank. It will deliver 13.8 per cent more pipe-line oil than a low 500-bbl. tank, has 51.5 per cent less exposed surface and it can be divided into two tanks very easily when production declines.

Minimize evaporation losses.

One company recently tightened a tank battery and eliminated all leaks at the cost of $400, but earned back all the cost of work in less than a month through a 2-cent increase per barrel in the value of the oil. The saving of 1 per cent evaporation loss corresponds to 2½ per cent less oil withdrawn from the well to get the allowable production. Some pipe lines object, claiming they will lose the "false" gravity in their own tanks. Pipe lines will tighten up their systems as demand is made by refineries for delivery of "complete" products.

Devices for gaging and thiefing tanks under pressure are available. These allow thiefing and gaging without loss of vapors. They also lessen

the hazard to gagers where the gases are poisonous and they aid in the prevention of corrosion by the exclusion of air from the tanks.

Tanks should have a cleanout opening of sufficient size and should be provided with a ventilation dome. Cleanout openings have increased from 12 by 12 in. to as large as 60 by 30 in. A.P.I. standard is 24 by 46 in. One company specified 24 by 30-in. cleanout openings in welded tanks after they found it was impossible for a man with a gas mask to crawl through smaller ones. A dome should be included on bolted, welded or wooden tanks. No piping should be permitted on the dome as this reduces the ease of using it. A gaging plate is suggested to get away from the pricking effect of the gage-line plumb bobs. It would be located about a half inch off bottom.

Tank foundations.

Tanks should be located on high ground. Flat foundations are preferred and for all but wooden tanks the foundation should be larger than the tank bottom. The drainage ditch should be located at least 6 in. from the edge of the tank; cement or gravel placed between the drainage ditch and tank will prevent erosion by driving rains.

Concrete makes a good foundation, but it is not necessary except in very soft ground. Ordinary earth can withstand a load from 2 to 5 tons per sq. ft., while the load in a 16-ft. tank is only ½ ton. Concrete slabs for wooden tanks are the only foundations which should be smaller than the tank. Creosoted wood makes a good foundation for a wooden tank but is generally more expensive. Don't for any reason balance the tank on a mound of dirt, and don't dig caves under the tank to permit bottom draining; a side drain is just as effective.

There is some question as to whether anti-channel boxes are worthwhile. A coat of paint as soon as the tank is erected will prevent corrosion due to scratches in shipping, etc.

Ease oil into tank.

The oil production should be eased into the tank. One way is by a deflector elbow, which allows the stream to slide down the tank side. Another is by a bottom inlet, a method commonly used in refineries. A third is by a sloping pipe with holes in the top to prevent siphoning and to allow some of the entrained gas to escape. A Kansas producer raised the gravity of his oil by using a sloping box.

Piping hookup.

Piping should be kept off of the tank decks and it should be unnecessary for the gager or pumper to walk on the tank deck. Automatic switching valves help prevent tanks from running over, and overflow lines connected into all the tanks, with a lockable stop in between, will serve the same purpose. A gas-equalizing line between the tanks is helpful. Gas for the equalizing line can be taken from the separator vent. This prevents the entry of air into the tank. Tanks insulated from their natural grounding through the pipe line should be separately grounded by a rod driven to moisture.

Thief valves on tanks should be kept closed and should never be left standing open, even during the running of the oil into the pipe line. Fear that the tank decks will be pulled in is unjustified if the vacuum valves are working.

New tanks, both steel-bolted and wooden, should be tightened the first time they show a stain, after which they should give much trouble-free service. Steel tanks should be painted every year or two. Wooden tanks should never be painted with a sealing paint, as it is necessary that the wood "breathe" to prevent dry rot. Porous paint, such as creosote, is good, but a better treatment is to paint the outside of the tank with crude oil.

Marking Rights-of-Way

By PAUL REED

MORE attention is being paid to the methods used for marking pipe-line rights-of-way since it is important to furnish certain information to the general public in addition to what is required by company employes who are concerned with the maintenance of the line. For a long time it has been common practice with a number of pipe-line companies to mark points where lines cross highways by placing on nearby fences wood or metal signs which only give the company name. These are useful for following the routes of rights-of-way across country.

In several localities it has been observed that there is an advantage in also showing the nearest telephone of the company which should be called in case a break in the line is seen by some one not employed by the company. In the vicinity of Sentinel, Tex., it is reported that a hunter discovered a leak in an oil line and attempted to notify the company. But he called the wrong company. As a result time was lost before the line was repaired.

The illustrations show three modern methods for marking lines. One shows a gas line, passing through oil fields, which is painted so as to show clearly the name of the company and the name of the place where the nearest office is located. Another, in addition to giving the company name, shows telephone number of the nearest office, type and diameter of the line, and the location of the point marked.

The third type of marker shown has been designed by a crude-oil organization to serve a dual purpose. This consists of a piece of 2-in. pipe to which have been welded pieces of sucker rods which have been fabricated to furnish a ladder on one side of the pipe and, on the other side, a support for a sign indicating the location of a high-pressure line, giving the company name, and displaying the company emblem. The pipe is high enough to be easily seen at a distance by the line walker; the ladder serves to expedite the crossing of fences when the line walker is patrolling the line.

QUESTIONS ON TECHNOLOGY

By W. L. NELSON, TECHNICAL EDITOR

Caking of Sucker Rods By Hard Water

We have some wells in which the sucker rods are always badly caked with a stony deposit. What can be done about this?—R. N.

The caking of rods is a common occurrence in many oil fields. The deposit is due to dissolved solids and gases in the well water. Upon reduction of pressure and decrease in temperature as the water (and oil) flows upward in the well, the dissolved solids such as calcium sulfate, calcium carbonate and magnesium carbonate become less soluble in the water. These appear as solids and in the presence of other corrosive agents found in salt water, they attach themselves to metal parts such as the rods or pump parts. In addition, carbon dioxide gas is frequently present. This gas causes the calcium carbonate to stay in solution—and hence upon reduction in pressure and loss of the carbon dioxide gas, calcium carbonate comes out of solution.

In most instances the rods are cleaned by removing them from the well and knocking off the scale. Other operators keep inhibited hydrochloric (muriatic) acid at hand, and by circulating acid through the well at regular intervals, they can keep the deposit down to a reasonable thickness. An inhibitor must be used in the acid to keep it from attacking iron and steel parts of the well.

No information is readily available on the use of soft (relatively) water as a diluting agent in such wells, nor on the effect that heat would have on such wells. Nevertheless, both of these methods would appear to warrant an investigation. As an illustration, the solubility of calcium sulfate is somewhat as shown in the accompanying table:

SOLUBILITY OF CALCIUM SULFATE (INTERNATIONAL CRITICAL TABLES)

Deg. F.	Gm. calcium sulfate* per 1,000 gm. water
32	2.22
50	2.44
68	2.60
77	2.64
86	2.66
95	2.67
104	†2.67
140	2.54
176	2.34
212	2.13

*Calcium sulfate with 2 mols of water of crystallization. †Metastable state at temperatures above 104°F.

Thus, if the temperature of the well water should decrease from say 86° to 77° F. as it is pumped from the well, about 0.02 gm. of calcium sulfate per 1,000 gm. of water would go out of solution. This amount sounds small, but it amounts to 3.2 gm. per barrel of water, or 0.167 lb. per 1,000 gal. of water. Larger temperature differences would have a greater effect — and other solids such as calcium or magnesium carbonate would behave in a similar manner. Dilution with relatively pure water in the amount of less than 1 per cent would stop the precipitation computed above. Additional water would be required for other dissolved solids and particularly for calcium carbonate that is precipitated by liberation of carbon dioxide gas.

In a similar manner, the use of a small amount of steam to sustain the temperature at 86° F. would also assist in keeping the sulfate in solution. The steam would serve two purposes, i.e., to sustain the temperature, and to dilute the well water by the steam condensate. It would appear that less than 0.4 per cent of steam (based on pounds of well water produced) would suppress the precipitation of calcium sulfate in the situation assumed above. The use of steam, however, would have an adverse effect on the liberation of carbon dioxide from calcium bicarbonate because the higher the temperature the greater the liberation of this gas.

Finally, in those well waters which do liberate carbon dioxide because of the reduction in pressure, it might in some instances be economical to operate at a small back pressure on the well. In some wells use of water might cause "cave-ins."

●

Aircraft Fuels and Lubricants

I would appreciate any information which you may have on aircraft-engine fuels and lubricants that might be useful to me in the practical and theoretical course on aircraft engines which I am now taking.—C. D.

The subject of aircraft fuels and lubricants is a voluminous one, it it is possible to give general specifications.

The most important properties of aircraft fuels are summarized in the following tabulation:

	Grade			
	65†	73	91	100
Color +25 Saybolt	blue	blue	blue	blue
Octane No.,* min.	65	73	91	100
A.S.T.M. distillation—				
10%, °F., max	167	167	167	167
50%, °F., max.	221	221	212	212
90%, °F., max.	302	302	275	275
10 50%, °F., max.	307	307	307	307
Lead content, ml. max.		1.0	4.0	3.0

*A governmental modification of the A.S.T.M. method. †Acid heat shall not exceed 20° F.

In addition, all of the fuels should meet the following requirements:

Freezing point, max.	Minus 76° F.
Corrosion and residue (copper dish)	No discoloration and residue less than 5 mg.
Sulfur, max.	0.05%
Vapor pressure, Reid, max.	7 lb. per sq. in.
Water tolerance	Substantially immiscible
Gum (modified governmental method), max.	6 mg.
Residue from distillation, max.	1.5%
Loss by distillation, max.	1.5%
Acidity of residue of distillation	Neutral
Net heating value, min.	18,700 B.t.u./lb.
Inhibitor, max. for 5,000 gal.	1 lb.

AIRCRAFT-ENGINE LUBRICATING OILS

	Grade				
	62	77	98	120	145
Viscosity at 210° F. (S.U.V.) normal*	62	77	98	120	145
Viscosity at 100° F. (S.U.V.) max.	420	690	1150	1730	2540
Viscosity variation at 100° F. per second variation at 210° F.	18	20	23	28	35
Flash point, ° F., min.	400	425	450	475	500
Cloud point, °F., max.	15	20	25	...	...
Pour point, °F., max.	—10	0	10	20	30
Carbon residue, max. per cent	0.8	1.0	1.3	1.6	2.0

*A tolerance of plus or minus 4 per cent is permitted.

An excellent discussion of aviation fuels is presented in the September 1940 issue of Lubrication which can probably be obtained from the sales department of the Texas Co., 135 East Forty-second Street, New York.

Lubricating oils for aircraft engines are supplied in about five grades, as shown in the tabulation. In addition, the neutralization number must not exceed 0.1, emulsions with water must separate within 1 hour (F.S.B. 320.12) and for the U. S. Army the oils must meet the requirements of a special oxidation test.

A suitable oil for lubricating starter-energizers will have a viscosity of 185-215 seconds Saybolt Universal at 100° F. and a viscosity of less than 925 seconds at 40° F. The flash point will be greater than 150° F.; the pour point will be less than —40° F.; and the neutralization number will be less than 0.1.

For lubricating rocker arms and valves of air-cooled engines an oil should have a viscosity of 1,800-2,200 seconds Saybolt Universal at 210° F. and the Saybolt Furol viscosity at 100° F. should not be more than 2.5 times the Saybolt Universal viscosity at 210° F. Other suitable properties for such oil would be:

Pour point	Less than —40° F.
Flash point	Over 520° F.
Carbon residue	Under 2.5%
Corrosion	Noncorrosive
Odor	O.k. at 400° F.
Precipitation No.	0.1

The use of 8 per cent vegetable oil (such as castor or rape-seed oil) and 0.5 per cent of triethanolamine for neutralizing the acidity of the oil, is sometimes recommended.

The oil for Gyro aircraft instruments should be a light lubricating oil having a Saybolt Universal viscosity of only 55 seconds at 100° F. or about 200 seconds at 40° F. Other properties of such an oil are:

Flash point	Over 250° F.
Pour point	Under —60° F.
Neutralization No.	0.1
Corrosion	Noncorrosive

The grease for controllable propellers is often a sodium-base grease containing zinc oxide. The zinc oxide ranges from 4 to 7 per cent, the sodium soap from 14 to 20 per cent, and the mineral-oil content at least 75 per cent. The oil used in the grease should have a viscosity of about 150 seconds Saybolt Universal at 130° F. The water content should not exceed 1 per cent and the same is true of insoluble materials. The A.S.T.M. penetration on a worked specimen should be about 235, and the melting point should be under 300° F. The grease should be stable when heated at 212° F., it should be noncorrosive, and it should be substantially free from uncombined sodium hydroxide or fatty acid.

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Pipe-Line Activity

Sinclair Refining Co. Plans Marcus Hook-Pittsburgh Line

Experts of the Public Utility Commission state that preliminary steps toward construction of Union Pipe Line Co.'s line across Pennsylvania from Marcus Hook to Pittsburgh, Pa., have been taken by the Sinclair Refining Co.

The commission must approve the line before construction can begin, but thus far it has not received an application.

F.P.C. Clears Way for Large Natural-Gas Line Projects

Federal Power Commission dismissed for want of jurisdiction the applications filed by Western Natural Gas Co. and by Independent Natural Gas Co. for permits to lay natural-gas pipe lines from the Panhandle-Hugoton areas to Milwaukee and Madison, Wis. The commission stated that its jurisdiction exists only when it is proposed to construct facilities for the transportation of natural gas to a market in which natural gas is already being served by another gas company. Communities proposed to be served by the applicants do not constitute such a market. This appears to clear the way for extension of Natural Gas Pipeline Co. of America's line to Milwaukee from the Illinois-Wisconsin state line.

Globe Prepares for Construction Of McPherson-Council Bluffs Line

Globe Oil & Refining Co. is preparing to issue specifications to contractors this week for the construction of a 6-in. gasoline pipe line more than 220 miles in length between the company's refinery at McPherson, Kans., and Council Bluffs, Iowa. Bids will be received about April 17.

Derby Oil Completes Pipe-Line Extension

Derby Oil Co. is preparing to put in operation a 45-mile, 4-in. crude-oil line which has been recently completed and tested. The line will deliver oil from the Wherry area, western Kansas, to the company's main line.

Standard of New Jersey Mentioned in St. Louis-Marcus Hook, Pa., Oil-Pipe-Line Project

Standard Oil Co. of New Jersey has been mentioned as one of the major companies which are considering the construction of a crude-oil pipe line this year consisting of 10-in. and 12-in. pipe from the St. Louis area to Marcus Hook, Pa. In testimony presented to the Cole committee in Washington during recent investigation into relation of the pipe-line situation to the national-defense program, Dr. Robert E. Wilson, oil expert of the Office of Production Management, referred to the situation which would be served by this project when he said: "In case of naval operations in the Atlantic the tanker fleet could keep the Navy supplied with oil. Under such conditions the railroads would be unable to handle the volume of oil traffic needed for civilian use along the Atlantic seaboard." Dr. Wilson advised the oil industry to relieve this potential bottleneck by constructing new tankers, barges, and pipe lines and additional storage space. Some steps have already been taken, he said, including consideration by the industry of the economic feasibility of a crude-oil pipe line from the St. Louis area to Marcus Hook, Pa.

Bechtel and Dempsey Receive Contracts From Natural Gas Pipeline Co.

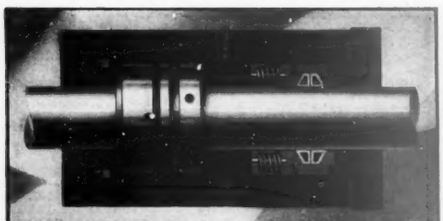
As part of the program planned for this year to enlarge the capacity of its system extending from the Texas Panhandle to northern cities, Natural Gas Pipeline Co. of America has awarded contracts for 184 miles of 26-in. pipe. A contract for 83 miles was awarded to W. A. Bechtel Co., which will be laid from Osceola to a point near Muscatine, Iowa. A contract for 101 miles to extend east of Crescent, Iowa, has been awarded to O. E. Dempsey Construction Co., the new organization of Oscar E. Dempsey which has been formed since the death of his partner, Loy Wilson. Dempsey-Wilson Construction Co. was a partnership which laid 100 miles of line from Geneseo to Belvidere, Ill., for Natural Gas Pipeline Co. of America; this project has been completed with the exception of the installation of gates.

In the construction of the lines which will be laid in the Osceola-Muscatine and Crescent sectors, fabricated bends will be used which will be shipped to the jobs from Milwaukee.

Stanolind Awards Contract to Oil States Construction Co.

Stanolind Pipe Line Co. recently let a contract for 103 miles of pipe-line work to Oil States Construction Co., which is owned by H. A. Edmonston. He was connected with Kelly-Dempsey contracting organization from 1928 to the time it was discontinued in 1940.

The job will consist of taking up 64 miles of 8-in. and laying 39 miles of 12-in. The work will be done in two sections. One section extends from a point east of the Stanolind pumping station at Carrollton, Mo., to Minden, Mo. The other section lies between Fort Madison, Iowa, and Lomax Junction, Ill.



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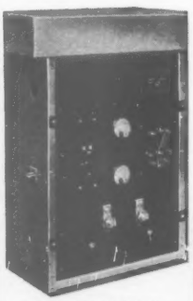

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THE OIL AND GAS JOURNAL

Pipe-Line Personalities . . . . Daniel M. Sachs

DANIEL M. SACHS, president of the National Transit Co., Oil City, Pa., obtained his practical experience in a machine shop before going to a technical school. He worked his way through college in the days when that achievement was not as commonplace as it is today.

Born in Luzerne County, in the anthracite mining region of Pennsylvania, his first job came at the age of 14 when he became office boy for a mine superintendent. Three years later he entered a business college, from which he graduated in 1894.

But bookkeeping was not to his liking and he became an apprentice in the Drifton, Pa., plant of the Cox Iron Manufacturing Co. Later he attended the Mining and Mechanics Institute, Freeland, Pa., at nights while serving the 4 years of his apprenticeship.

Upon the completion of his course at the Drifton shop, he entered Lehigh University, after some coaching by an engineer friend. He was graduated in 1902 with a mechanical-engineering degree. His first post after graduation was with Bethlehem Steel Co., Bethlehem, Pa., where he was employed for 2 years. In 1904 he entered the pipe-line business as assistant to the chief engineer of the New York Transit Co., with headquarters at Passaic, N. J. He later became chief engineer. With the dissolution of the Standard Oil Co. in 1911, he went to Oil City where he served as superintendent of the Northern Pipe Line Co., later becoming vice president and general manager.

In 1917 he was made general manager of the New York Transit Co., with headquarters at Binghamton, N. Y. In 1931 he returned to Oil City as president of the National Transit Co. He is also president of the National Transit Pump & Machine Co., a subsidiary. When he returned to Oil City he also became president of the Maryland Pipe Line Co., a subsidiary, which has since been liquidated.

This work is part of Stanolind's 1941 program to provide three separate systems for segregating crudes during transportation from Texas to the Standard Oil Co. (Indiana) refineries at Wood River, Ill., and Whiting, Ind.

Work on the contract let to the Oil States organization will start April 15 and will be completed June 15

Georgia Rails Protest Against Pipe Lines for National Defense

A. B. Conger, Bainbridge, Ga., district counsel for the Seaboard Air Line Railway, protested against suggestions that Congress clear the way for the construction of two oil lines in southern states.

With other railroad spokesmen, he appeared before a House interstate-commerce subcommittee investigating petroleum resources and supplies.

The Southeastern Pipe Line Co. wants to operate from Port St. Joe, Fla., to Chattanooga, Tenn., and the Plantation Pipe Line Co. from Baton Rouge, La., to Greensboro, N. C.

Both firms, formed by major oil companies for the purpose of building the lines, ran into legal difficulty in Georgia.

An article, illustrated by map, on Plantation Pipe Line Co.'s Baton Rouge, La.-Greensboro, N. C., project appears elsewhere in this issue.

Socony-Vacuum Provides for Delivery to Barge Terminals

The White Eagle Division of Socony-Vacuum Oil Co., Inc., will undertake construction of a 250-mile extension to the Augusta-Topeka-Kansas City light-oil pipe line which will be under way during the latter part of May. The extension, consisting of 6-in. pipe, will run from Topeka north to Omaha, Neb., and Sioux City, Iowa, connecting with the company's river terminals at these points. The company will then be able to deliver its products to these terminals either by river barge or pipe line, or both.

Moreland Describes Pipe Lines' Function in National Defense

Invulnerability of pipe lines to bomb attack and their supplemental transportation role to railroads in emergency are among the strategically important functions referred to in a statement by Harry Moreland, vice president and general manager of Great Lakes Pipe Line Co. The statement was incorporated in Continental Oil Co.'s annual report. The company owns a proprietary interest in Great Lakes.

The Great Lakes system, Mr. Moreland added, has an especially strong defense position for it serves a territory removed from the vulnerable seacoasts and is in an area that may be the last line of defense if an invasion of this country should ever occur.

The pipe lines' terminals, he said, encompass 10 states whose combined area is 20 per cent of that of the entire United States.

"These states are so centrally located," the statement read, "that it is apparent they will be our final line of defense. It is believed that there will be located finally the multitude of airports and industrial plants most important to the defense of this country.

"The largest cities in this area have modern airports and our terminals are located only a few miles away. The system as now constituted is capable of distributing 61,500 bbl. of gasoline daily, which can be increased 20 per cent with the addition of a few pump stations. Our lines cross the Mississippi River and Lake Michigan is reached by a short switch movement from the Chicago terminal.

"Railroads and trucks will be taxed beyond their capacities as the Middle West manufacturing and construction gain planned momentum. It follows that sooner or later excess capacity in gasoline pipe lines will be called upon to join the all-out movement, and the operators must prepare themselves for the call.

"A pipe line itself is not vulnerable to attack from the air, as it is difficult to locate after it has been in the ground 2 years; and because of its narrow width, it is no target for enemy planes. Our pump stations are located on urban or suburban property, and as the buildings are relatively small, it would be difficult to make a direct hit upon one of them. There is no great concentration of tankage, the largest area being at Des Moines, where storage covers 80 acres."

United Gas Pipe Line Co. Lays Line to Camp Polk

Construction was started this week on 50 miles of pipe line to bring natural gas to Camp Polk and Leesville, La., as well as to take care of increasing fuel requirements of the industries and towns between De Quincy and Leesville, La., United Gas Pipe Line Co. officials announced Tuesday.

Kimbell Line Links Noelke With Texas-New Mexico System

Texas Co. has agreed to purchase 500 bbl. of crude daily in the Soma field in Crockett County, Texas. George Kimbell of Wichita Falls will lay a short pipe line from the field to the Texas-New Mexico Pipe Line Co.'s line to the Gulf Coast.

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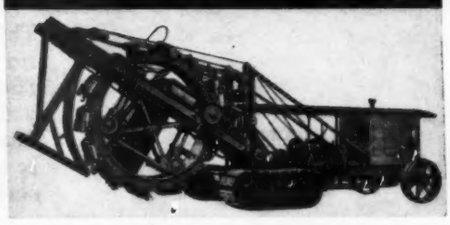

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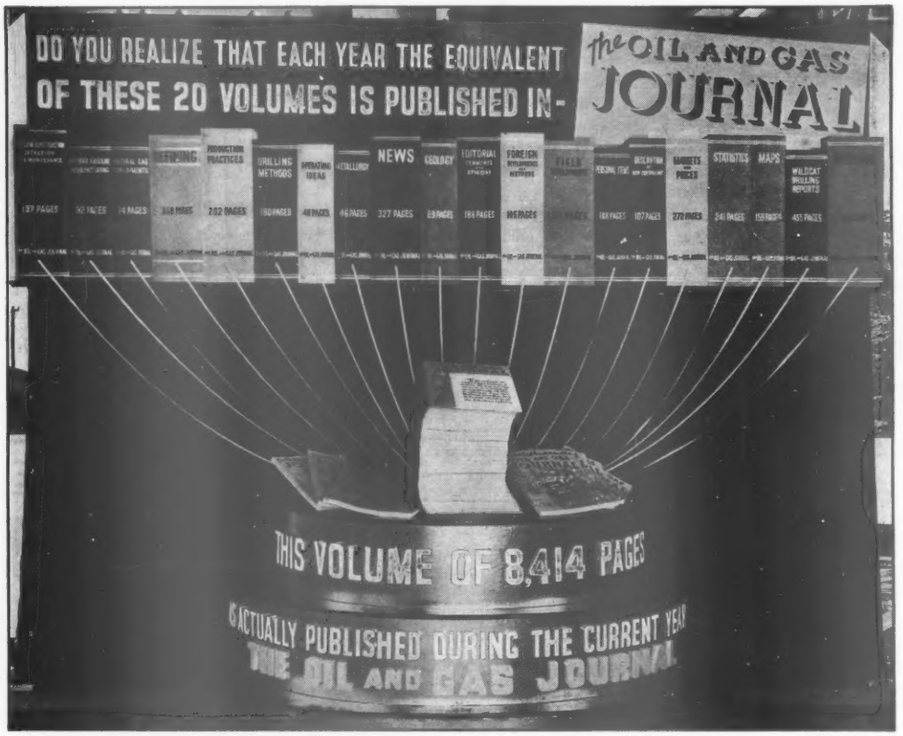

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THE OIL and GAS JOURNAL

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FIELD DEVELOPMENTS...

HIGHLIGHTS FROM THE WEEK'S NEWS—

Crude-price increases throughout the country overshadowed news of discoveries, extensions and development, but were expected to have little direct effect on field work in the near future. However, they did serve to bolster already bright prospects for a year of intensive drilling and exploration and to encourage some operators to broaden their programs. Completions were already on the upswing and 376 new oil wells were brought in during the week as compared to 338 the week before. Total completions, including gas wells and dry holes, were up 37 from the previous week to 521.

Prices for heavy crudes dominated the California outlook, too, with demands for fuel oil by the Navy and by defense industries upsetting the normal ratio of heavy and light crude consumption. Operators were being urged to increase their heavy crude supplies, but were reluctant to do so without a price raise.

Illinois was trying hard to stay in the race and completions this week were close to the 60 mark that has been held consistently for the past several weeks.

ILLINOIS: The famous Kalkbrenner strip in the Salem field, which has 14 wells in an area ½ mile long and 20 ft. wide, was sold to the Texas Co. Conditions in this strip gave rise to much of the outcry against waste at the time of the Illinois play. The Devonian test in the McKinley field, which showed for a producer a week ago, was a failure (p. 55).

WEST TEXAS: Completions and new locations were up again with 44 new wells reported and 3 dry holes, a total of 47 as compared with 45 the previous week. Drilling continued on a large scale in the Noelke field, a shallow pool where exceptionally large wells have been brought in, and the field's first pipeline outlet was projected. The vast Slaughter field was extended to the north (p. 58).

WYOMING: Changes in the Lance Creek crude-price structure were expected to be far more sweeping than in most other areas because of long-time contracts which were running out and the high prices bid at a government sale (p. 76).

KANSAS: Stafford County had another new pool at the westernmost extreme of a southwest-northeast cross-trend of the Barton arch that has been developed by a lively campaign in recent months. The new pool has been named Macksville after the town lying to the south. Upward trends in drilling and production continued and a California major company, which investigated Kansas possibilities about a year ago, was again considering entering the Kansas play (p. 60).

EASTERN TEXAS: A revival of drilling activity in the East Texas field about 6 months ago has kept that area the most active in the region with 14 completions this week. A lively drilling campaign was also under way at Hawkins and wildcats were started or have been planned in widely scattered areas (p. 71).

ARKANSAS: New gas-condensate production was opened in the South El Dorado field of Union County and the Darcheat field of Columbia County was extended ½ mile east (p. 78).

CALIFORNIA: Shell Oil Co., Inc., launched a development program on the Matthews, Security and Vedder properties in the Mount Poso field and also started a wildcat in Dyer Creek northwest of Mount Poso. Chief objective of the company was heavy crude to meet the increasing demand. Production of heavy crude in the San Joaquin Valley at present was believed to be at capacity without some reconditioning and operators were reluctant to work over their wells with heavy crude prices what they were. Results of a production test at a new well north of the Athens-Rosecrans field were being watched closely (p. 65).

OKLAHOMA: West Hewitt, discovered between the Hewitt and Healdton pools in September 1940, was approaching boom stages with 30 rigs running. Six wells were completed last week for a total daily potential of 2,511 bbl. Logan County, where the Guthrie pool was opened early this year, was drawing considerable attention from both lease buyers and wildcatters, and production was extended to the west in the Cement field of Caddo County (p. 74).

TEXAS GULF COAST: Matagorda County had a new oil field discovered by a wildcat 2½ miles west of the Hamman field. The sand section corresponded with that at Hamman, and the completion is expected to result in more drilling and wildcatting throughout the county. A major extension to the West Beaumont field was assured by the blowout of a wildcat which was estimated at 50,000,000 cu. ft. of gas a day after it was brought under control, and another wildcat in Hardin County recovered pipe-line oil in a drill-stem test in the Cockfield sand (p. 73).

COMPLETIONS IN ALL FIELDS . . .

(Week Ended April 5, 1941)

	Oil	Gas	Dry	Total	1941 total comp. to date	1940 total comp. to date
N. Y., Pa., and W. Va.	56	17	2	75	1,078	972
Ohio	11	16	11	38	372	222
Indiana	4	2	4	10	104	80
Kentucky	1	3	0	4	120	92
Illinois	45	1	11	57	704	838
Michigan	6	0	2	8	205	332
Kansas	34	0	4	38	419	346
Oklahoma	16	0	9	25	344	423
Nebraska	1	0	2	3	20	0
Texas:						
North Central Texas	29	3	20	52	652	792
West Texas	44	0	3	47	494	529
Texas Panhandle	10	0	0	10	127	148
Eastern Texas	24	2	1	27	283	199
Texas Gulf Coast	20	1	5	26	271	331
Southwest Texas	19	1	8	28	392	575
Total Texas	146	7	37	190	2,219	2,574
North Louisiana	10	1	6	17	149	151
Louisiana Gulf Coast	11	0	3	14	200	206
Total Louisiana	21	1	9	31	349	357
Arkansas	3	2	4	9	45	53
Mississippi	5	0	1	6	49	16
Montana	1	0	0	1	60	32
Wyoming	5	0	0	5	37	37
Colorado	0	0	0	0	9	6
New Mexico	6	0	0	6	76	162
California	15	0	0	15	265	253
Total United States	376	49	96	521	6,475	6,795
Total previous week	338	43	103	484		
Week ended Apr. 6, 1940	380	29	122	531		

NORTH LOUISIANA: Three wells had found new oil along the Wilcox trend and were testing their possibilities as pool openers. Wilcox activity, still centered on La Salle Parish, has pushed across the Mississippi River into Mississippi (p. 78).

CANADA: Turner Valley wells are straining to produce the 26,000-bbl. daily quota and concern was voiced over heavy withdrawals that may deplete pressure too fast. Six new wells are nearing completion, however, and may relieve the situation (p. 81).

MONTANA: A wildcat on the Reagan structure, northwest of the Cut Bank field, drew attention when it cored saturation in the Madison lime at 3,825-55 ft. It is the Madison lime that produces in Turner Valley to the north (p. 76).

OHIO: Prospects for the first Trenton lime production east of the Cincinnati arch faded out when a deep test in Erie County, Pennsylvania, just across the Ohio State line, was abandoned. The well had tested both the Trenton and a formation that was believed to be the St. Peter sand (p. 54).

LOUISIANA GULF COAST: Belle Isle salt dome, which has attracted wildcatters since the days of Spindletop and Anthony Lucas and has been tested by some 30 holes in recent years, was brought into production by Sun Oil Co. with a distillate well. The well was bottomed in a sidetracked hole at 11,117 ft. and was good for 16 bbl. of 47.5-gravity distillate through ⅛-in. choke. At the same time production was extended at the newly opened St. Gabriel field in Iberville Parish (p. 70).

Northwest Pennsylvania Test Dry in Trenton and St. Peter

By STAFF CORRESPONDENT

ERIE, Pa., Apr. 7.—Ohio Oil Co. has abandoned its Jay Childs test in Springfield Township, Erie County, which was drilled to 5,191 ft., the deepest well drilled in that section of Pennsylvania. The company has made no plans for a second deep test in that area, although it is understood that the showing in the first well was considered favorable.

The well (elevation 630 ft.) encountered the Trenton lime at 4,437 ft. and had a show of a light green oil near the top of the Trenton. A white sand, which was believed to be the St. Peter, was found at 5,181 ft. with a show of both oil and gas and some salt water. The oil was a "sweet" oil, rather than the "sour" oil generally found in that horizon in the West. The oil was believed to be different from that in the Trenton lime.

SUMMARY OF COMPLETIONS

	No.	Bbl.	Footage
Ohio			
Oil wells	11	52	9,155
Gas wells	16	*13.3	38,740
Dry holes	11	.....	17,755
Total	38	.....	65,650
Indiana			
Oil wells	4	130	8,813
Gas wells	2	*0.6	1,838
Dry holes	4	.....	5,191
Total	10	.....	15,842
Eastern Kentucky			
Oil wells	1	2	.....
Gas wells	3	*1.5	7,411

*Million cu. ft.

OHIO

A new test is starting for the Oriskany in Southeast Ohio where John T. Galey et al are building a rig on the Jacob Ullman heirs farm, NE Section 21, Elk Township, Noble County. It is located on a northeast spur of the Cambridge arch and starts at a surface elevation of 703 ft. The contractor is W. H. Larick of Byersville, Ohio.

A 6,000,000-cu. ft. gas well in the Newburg horizon at 2,720 ft. in Seven Hills Village, Cuyahoga County, 1½ miles south of the city of Cleveland corporation line and ¼ mile east of state route No. 176 gives impetus to further development in this area. Licking and Meigs counties yield fair gassers. Coshocton County test proves to be disappointing in the Clinton. Of the 23 completions 12 were gas, 3 were oil and 8 dry.

In Harrison County, the East Ohio Gas Co. 1 Elizabeth Philips, Washington Township, Section 23, found the Berea at 1,344-1,411 ft., no oil or gas, small show water at 1,350 ft.

In Stock Township, Brendel Production Co. 1 D. West, Section 20, found water in the Berea. Both tests are drilling ahead.

The Ohio Oil Co. 1 Joseph Armstrong, Section 14, Wooster Township, Wayne County, has cemented casing and are cleaning out preparatory to acidizing the oil showing found in the top of the Trenton at 5,015-21 ft. and 5,035-39 ft.

In Mahoning County, Smith Township, the Magnolia 1 Della Shrum test is drilling at 4,150 ft.

OHIO COMPLETIONS

Ashland County

Jackson Township: Ohio Fuel 2 J. K. McDowell, Sec. 5, dry, Clinton, T.D. 2,932 ft.

Athens County

Canaan Township: Choguill et al 1 R. H. White, Sec. 3, 90,000 cu. ft. gas, shot, second Berea, T.D. 1,442 ft.
Rome Township: Gibson et al 10 Wells Van Dyke, Sec. 30, 3 bbl., shot, first Cow Run, T.D. 415 ft.
J. A. Wickers 3 E. F. Balderson, Sec. 16, 600,000 cu. ft. gas, Maxon, T.D. 828 ft.

Coshocton County

Perry Township: Preston Oil Co. 3 John R. Rine, Sec. 16, 7-bbl. pumper, Clinton sand, T.D. 3,178 ft.
Washington Township: Lupher Drilling et al 1 Charles Hammond, NE Sec. 15, dry through Clinton, T.D. 3,420 ft.

Cuyahoga County

Independence Township: Hoey & Cummins 1 J. J. Kottershall, Seven Hills Village, 6,000,000 cu. ft. gas, Newburg 2,706-20 ft., top of Corniferous lime 1,445 ft.

Guernsey County

Center Township: Frank Stranges 3 J. F. Devold, Lot 11, 120,000 cu. ft. gas, Berea, T.D. 1,325 ft.
Liberty Township, Wiser Oil Co. 1 Ira A. Bell, Sec. 16, dry, Gordon, T.D. 1,642 ft.

Knox County

Union Township: Ohio Fuel Gas 1 Nettie Shoultz, SW Sec. 5, 275,000 cu. ft. gas, Clinton sand, T.D. 2,760 ft.

Licking County

Mary Ann Township: Liston W. Patten et al 6 P. O. and Daisy Wright, Sec. 6, 3-bbl. pumper, Berea, T.D. 745 ft.
Newton Township: Ohio Fuel 2 H. W. Gleckler, Lot 5, first quarter, 2,300,000 cu. ft. gas, Clinton, T.D. 2,635 ft.
Penick et al 2 Levi Lynn, NE fourth quarter, 220,000 cu. ft. gas, Clinton, T.D. 2,574 ft.
Perry Township: G. S. Lacknett et al 4 T. R. Vanallen, Sec. 17, 60,000 cu. ft. gas, Berea, T.D. 735 ft.
Willard Gaudert et al 1 John Holtman, Lot 30, light showing of oil only before shot, Clinton sand, T.D. 3,163 ft.
Union Township: James McCloy 1 Anna Cain, Lot 10, first quarter, dry, Clinton, T.D. 2,325 ft.

Medina County

Chatham Township: Blizzard Oil 2 B. E. Grim, Tract 1, Lot 5, 5 bbl., Berea, T.D. 635 ft.
Blizzard Oil Co. 3 B. E. Grim, 5 bbl., Berea, T.D. 637 ft.
Marine Trust Co. 19-A William P. Wertz, Tract 14, Lot 5, 5 bbl., Berea, T.D. 390 ft.
Marine Trust Co. 1-O William P. Wertz, input, Berea, T.D. 411 ft.
Marine Trust Co. 25-A Carl C. Packard, Tract 14, Lot 4, 5 bbl., Berea, T.D. 402 ft.
Marine Trust Co. 37-O Carl C. Packard, input, Berea, T.D. 405 ft.
Marine Trust Co. 38-O Carl C. Packard, input, Berea, T.D. 405 ft.
Marine Trust Co. 39-O Carl C. Packard, input, T.D. 440 ft.
Marine Trust Co. 45-O Carl C. Packard, input, T.D. 401 ft.
Preston Oil 2 R. W. Grim, Lot 4, Tr. 4, dry, Berea, T.D. 550 ft.

Meigs County

Bedford Township: Ohio Fuel 3 D. A. Dais, Sec. 26, 70,000 cu. ft. gas, shot, second Berea, T.D. 1,589 ft.
Rutland Township: Ohio Fuel 3 James Nelson, Sec. 22, 1,320,000 cu. ft. gas, Maxon, T.D. 937 ft.
Fleming et al 2 Ed Heath, Sec. 22, 25,000 cu. ft. gas, stray, T.D. 155 ft.

Monroe County

Washington Township: Bernard Grand et al 1 Mary L. Dye, Sec. 11, 34,000 cu. ft. gas, Squaw sand, T.D. 1,700 ft.

Morgan County

Marion Township: W. S. Harris 1 C. E. Gilpin, Fraction 1, 420,000 cu. ft. gas, Brill, T.D. 1,004 ft.

Muskingum County

Brush Creek Township: Mehowa Oil & Gas Co. 1 Charles Oldem, SE Sec. 11, 1,500,000 cu. ft. gas, Clinton sand, T.D. 4,090 ft.

Noble County

Enoch Township: Felix Gerst et al 2 Casper Schott, Sec. 27, 5 bbl., Macksburg 500-ft. sand, T.D. 590 ft.
Enoch Township: Garet & Moseley et al 2 W. J. Scott, SW Sec. 27, 2-bbl. pumper, Macksburg 500-ft. sand, T.D. 590 ft.
G. M. Harper et al 5 John Schafer, SE Sec. 32, dry, light showing of oil only, stray sand, T.D. 650 ft.

Stark County

Lake Township: East Ohio Gas 1 C. E. Stambaugh, Sec. 33, 300,000 cu. ft. gas, shot, Clinton, T.D. 4,647 ft.

Vinton County

Eagle Township: Henderson Oil Co. 2 W. H. Thomas, dry, Berea, T.D. 400 ft.
Aurelius Township: Parks et al 1 L. Atherton, Sec. 17, dry, Buel Run sand, T.D. 176 ft.
Barlow Township: James Henry 1 fee, Sec. 10, dry, Squaw, T.D. 1,582 ft.

Washington County

Fearing Township: Emmett W. Haas et al 3 Charles Kuntz, Lot 100, 7 bbl., Macksburg 500-ft. sand, T.D. 923 ft.
Albert John et al 1 George Seylor, Lot 99, dry, Macksburg 500-ft. sand, T.D. 915 ft.
Liberty Township: Fifteen Oil & Gas Co. 1 John Schenkel, at Neff Ridge, 16,000 cu. ft. gas, injun sand, 1,685 ft., had a small showing of oil in lime, drilled through Berea, which was dry, T.D. 2,020 ft.
Warren Township: Henderson Oil Co. 40 Dye heirs, SE Sec. 8, 5 bbl. before shot, first Cow Run sand, T.D. 650 ft., in midst of air-pressure drive.

INDIANA

EVANSVILLE, Ind., Apr. 7.—Several wildcat failures in Posey County in recent months have failed to halt Gulf Refining Co. in its search for new crude reserves. At the end of the week, the company was reported drilling below surface pipe at 1 Aldrich Community, a new wildcat venture in SE NE NE 8-6s-14w, Lynn Township. The 1 Aldrich Community is located 1¾ miles southeast of Gulf's recently abandoned 1 Aldrich.

The Illind Oil Co. last week staked location for 1 Fredericka Hendricks in 31-6s-11w, Vanderburg County. The test, 4 miles west of Evansville, is 1,200 ft. northwest of T. W. Drake 1 Nurrenbern, recent pool opener in the Mansfield sand. The 1 Nurrenbern is now pumping 25 to 30 bbl. a day.

Cherry & Kidd 2 Pocket Realty Co., SW SE SW 35-3s-14w, Aux Vases test, was reported drilling at 1,500 ft. at the end of the week. The 2 Pocket Realty Co. is a north offset to Cherry & Kidd 1 Pocket Realty Co., recent Aux Vases pool opener now pumping 150 bbl. a day. Meanwhile, John T. Harris 1 Ballard Daugherty, NE NW NW 1-4s-14w, ½ mile east of 1 Pocket Realty Co., was shut down at 2,750 ft., apparently dry in the Aux Vases.

INDIANA COMPLETIONS

Blackford County

Wildcat: Annie Massel 11 fee, NE NE NE 17-23n-11e, 10,000 cu. ft. gas, Trenton 947 ft., T.D. 969 ft.

Decatur County

Wildcat: St. Paul Nat. Gas 2 Peck, NW SW 14-9n-9e, 50,000 cu. ft. gas, 40-qt. shot 854-69 ft., Trenton 854 ft., T.D. 869 ft.

Gibson County

Heston pool: Turbeville et al 1 Heston, NE NE SE 8-3s-13w, dry, T.D. 2,852 ft.

Martin County

Wildcat: Collier & Burton 1 Swayze, NW NE NE 10-3n-4w, dry, T.D. 765 ft.

Orange County

Wildcat: United States Oil 1 G. E. Willyard, NW NE SW 33-1n-1w, dry, T.D. 574 ft.

Posey County

Point pool: Basin Drlg. et al 3 Oakland City College, SE NE SW 16-8s-14w, pumped 50 bbl. oil and 100 bbl. water, 4,000 gal. acid 2,624-83 ft., 4,000 gal. acid 2,670-83 ft., T.D. 2,683 ft.
Heusler pool: Sun 4 Miller, SW SE SW 1-7s-12w, pumped 60 bbl. oil and 120 bbl. water, 20-qt. shot 1,905-15 ft., T.D. 1,924 ft.
Wildcat: Holemans 2 Oeth, SE SE NE 6-4s-13w, rig abandoned.
Ed Holemans 1 Oeth, NE SE NE 6-4s-13w, pumping 5 bbl. oil and 10 bbl. water a day, McClosky 2,929-34 ft., T.D. 2,981 ft., P.B. 2,935 ft.

Steuben County

Wildcat: C. C. Goff 1 Robertson, SE SE SE 25-36n-13e, dry, Trenton 730 ft., show gas 780 ft., T.D. 1,000 ft.

Sullivan County

Wildcat: T. H. Drake 1 Curry, NE SW 11-9n-8w, spudded and abandoned.

Vanderburg County

Vienna pool: James Havens 2 Dye, NE SE NW 31-5s-11w, pumped 15 bbl., 120-qt. shot 1,177-1,225 ft., T.D. 1,225 ft.

INDIANA DRILLING REPORT

Crawford County

Reece-Dietz et al 1 Esarey.....NE NW NE 36-3s-1w
S.D. 345 ft.

Daviess County

Newton P. L. 1 Dorsan.....NW SW SE 35-2n-5w
Drilling 2,089 ft.
D. L. Norris et al 1 Hunter.....SW SE NW 4-2n-5w
Location, first report.

Elkhart County

A. W. Downs 1 Bement.....NW NW SW 12-38n-4e
First report, S.D. 208 ft.

Gibson County

Mabee 1 Helm.....SW NW NW 27-3s-14w
Set 10-in. 153 ft., drilling 1,960 ft.
Joe Bander et al 1 Dunn.....SW SE SW 18-3s-13w
15-qt. shot 2,084-90 ft., T.D. 2,090 ft.
W. C. McBride et al (was C. A. Lynch) 1 Blood.....SE SE NE 28-3s-14w
Rigging up rotary.

Greene County

Midwest et al 1 Good.....W½ NE NW 21-6n-7w
Drilling 350 ft.

Newton County

A. C. Thomas 1 Henekle.....SE SE SE 36-30n-9w
S.D. 485 ft.

Perry County

H. E. Pollock 1 J. F. Heck.....SE SE SE 16-7s-3w
S.D. 200 ft.

Porter County

F. Jablonske 1 Pluta.....SW NW SW 27-37n-5w
S.D. 890 ft.

(Continued on Page 75)

By
STAFF CORRESPONDENT

Devonian Test in McKinley Field Is Dry; Prices Hiked

MATTOON, Ill., Apr. 7.—Crude-oil price increases and the sale of the famous Kalkbrenner strip in the Salem field vied in importance with extensive exploration over the Illinois fields last week.

The Sohio Corp. announced early last week that it would boost its posted price 5 cents for all crude-oil purchases in Illinois and Indiana. The new price is $1.20 a barrel but in some of the state's older fields the price is slightly lower. Two days after the price boost by Sohio, the Texas Co. announced that it had increased its posted price for Illinois crude oil 7 cents a barrel. The company is purchasing agent but its crude is carried by another company, the Texas Pipe Line Co. The Texas Co.'s principal Illinois purchases are in the Salem field where it is the chief operator. The new price will be $1.22 a barrel in the field, 2 cents a barrel more than is being paid by any other company.

Nearly every other major purchaser has met the 5-cent increase but not the Texas 7-cent boost. Others who increased 5 cents include the Carter Oil Co., Ohio Oil Co., Ashland Oil & Refining Co. and the Pure Oil Co. The price hikes were generally attributed to a strong demand for crude because of the defense program. The Texas Co.'s 7-cent raise was believed to be based on the average increases which have been made in some of the other oil states. All of the new prices are based on 100 per cent tank-table readings.

SUMMARY OF COMPLETIONS

	No.	Bbl.	Footage
Oil wells: Benton	2	952	4,262
East Calvin	4	401	10,322
Hoodville	3	540	9,229
Louden	3	354	4,696
Mount Carmel	13	1,730	28,379
West Enterprise	1	332	3,090
West Liberty	3	1,293	8,530
Other pools	15	1,039	31,428
Wildcats	1	29	1,110
Gas wells: Russellville	1	†3.0	798
Dry holes: Fields*	5	.....	12,207
Wildcats	6	.....	12,170
Total	57	.....	126,221
Recompletions	5	415	.....

*St. James 1, Thompsonville 1, Allendale 2, Mill Shoals 1. †Million cu. ft.

Texas Buys Strip in Salem Field

The filing of a conveyance at Salem, county seat of Marion County, last week revealed that the Texas Co. has acquired the famous Kalkbrenner strip of the Salem field. Fourteen wells were drilled on the half-mile-long tract that is only 7 ft. wide at one end and 20 ft. wide at the other. Thirty-nine offset wells were required on adjoining acreage held by the Texas Co., thus giving the strip, slightly more than ½ mile long and less than 60 ft. wide, a total of 53 wells. No similar area in the state has as many wells. It was this situation that aroused much criticism of Illinois for not stopping wasteful drilling practices and permitting both physical and economic waste and being regarded as one reason why federal control would be favorable.

The 14 wells originally drilled on the strip have produced 1,250,000 bbl. from five formations. The price paid to the former owners, A. N. Cornwell of St. Louis, and associates, was not disclosed.

TRENTON WELLS.—Thirty wells are now being deepened from the Devonian to the Trenton in the Salem field of Marion County, making it the most active field in the state at the present time. The northernmost test in the field, Ladd Oil Co. 4 Young's Church, located on a 1-acre tract in 21-2n-2e, had 250 ft. of oil in the hole and was drilling ahead last week. Trenton completions in the field still produce between 150 and 250 bbl. a day initially with the average better than 200 bbl. a day.

DEVONIAN TEST.—The greatest disappointment last week was the failure of Joe Murphy's Devonian test in the McKinley field of Washington County. Plug was drilled at the prospective Devonian discovery, 2 fee, NW NW NE 29-3s-4w, late last week but there was no oil show. The test, dry in the McClosky, Cypress, and Benoist, cored saturation in the Devonian from 2,250 ft. It was reported that the well will probably be deepened. Production in the McKinley field at present is confined to the Benoist sand.

ILLINOIS COMPLETIONS

Clinton County

Wildcat: J. F. Ashoff 1 Lampen, NW NW NW 16-1n-2w, pumped 29 bbl. oil and 1 bbl. water, natural, Cypress 1,105 ft., T.D. 1,110 ft., discovery well of Posey pool.

Effingham County

Mason pool: Benson 1 Fox, SW SW NE 22-6n-5e, pumped 65 bbl., 1,000 gal. acid, 2,500 gal. reacid., Fredonia 2,496 ft., T.D. 2,505 ft.

Fayette County

Louden pool: Carter 1 W. B. Miller, NE NW SE 1-8n-3e, swabbed 144 bbl. oil and 12 bbl. water, 60-qt. shot 1,508-27 ft., Cypress sand 1,482-1,527 ft., T.D. 1,527 ft.

Rhynes 5-B Koberlin, NE SE NW 4-7n-3e, pumped 60 bbl., 35-qt. shot 1,486-1,503 ft., Cypress 1,476-1,509 ft., T.D. 1,581 ft.

Carter 4 B. Shaw, NW NE NE 17-7n-3e, swabbed 186 bbl. from Weller and stray, 20-qt. 1,577-85 ft., 30-qt. shot 1,513-23 ft., Weller 1,498-1,534 ft., Paint Creek stray 1,567-87 ft., T.D. 1,588 ft.

St. James pool: Texas 4 E. Maxwell, NE NE SW 19-6n-3e, dry, Glen Dean 1,445 ft., Cypress sand 1,611-25 ft., Cypress 1,590 ft., Golconda 1,518 ft., T.D. 1,634 ft.

Wildcat: H. F. Robinson 1 Roe, NE SE SW 19-7n-1w, dry, Glen Dean 962 ft., Cypress sand 1,157 ft., Benoist 1,236 ft., T.D. 1,328 ft.

Franklin County

Thompsonville pool: Benedum-Trees 1 Shefford-Raley, SW NW NE 35-7s-4e, dry, Kincaid 1,825 ft., Menard 2,225 ft., Glen Dean 2,470 ft., Golconda 2,600 ft., Cypress 2,765 ft., Paint Creek 2,840 ft., Benoist 2,970 ft., Ste. Genevieve 3,040 ft., Rosiclare 3,075 ft., T.D. 3,300 ft.

Benton pool: Wegener 1 C. W. & F. Coal, SW SE SW 24-6s-2e, pumped 380 bbl., 25-qt. shot 2,100-17 ft., Tar Springs sand 2,083 ft., T.D. 2,117 ft.

Shell 2 W. E. Doty et al, NW NW NE 25-6s-2e, pumped 572 bbl., 15-qt. shot 2,127-37 ft., Tar Springs sand 2,104-47 ft., T.D. 2,147 ft., P.B. 2,145 ft.

Hamilton County

Dahlgren pool: Sinclair-Wyoming 1 E. Gage, NE SW NE 34-3s-5e, pumped 145 bbl., 2,000 gal. acid, McClosky 3,328-38 ft., T.D. 3,350 ft.

Hoodville pool: Ohio 7 Matheny, NW SE SE 3-6s-6e, pumped and flowed 245 bbl., natural, Aux Vases 3,077 ft., T.D. 3,091 ft.

Tide Water 1 Morio, NW NE SE 3-6s-6e, pumped 52 bbl., 10-qt. shot 3,060-65 ft., Aux Vases 3,049 ft., T.D. 3,065 ft.

Tide Water 2 Morio, SW NE SE 3-6s-6e, pumped and flowed 243 bbl., natural, Aux Vases 3,058 ft., T.D. 3,073 ft.

Jasper County

West Liberty pool: Pure 3 Abe Davidson, E½ SW SW 17-5n-10e, pumped 192 bbl., 5,000 gal. acid, Fredonia 2,789 ft., pay 2,805-08 ft., T.D. 2,830 ft.

Pure 2 J. W. Hovey A, W½ SE NE 17-5n-10e, pumped 16 bbl., 2,000 gal. acid, Fredonia 2,784 ft., pay 2,784-91 ft., T.D. 2,825 ft., P.B. 2,761 ft.

Pure 3 Tedford Consol., W½ SE SW 20-5n-10e, flowed 1,085 bbl. through 1-in. choke, 5,000 gal. acid, Fredonia 2,820 ft., pay 2,822-31 ft., 2,854-59 ft., T.D. 2,875 ft.

Wildcat: Pure 1 A. A. Cunningham, W½ SW SE 16-6n-10e, dry, Glen Dean 2,278 ft., Barlow 2,428 ft., Cypress 2,450 ft., Renault 2,686 ft., Aux Vases 2,723 ft., Ste. Genevieve 2,752 ft., Rosiclare 2,765 ft., Fredonia 2,790 ft., T.D. 2,883 ft.

Jefferson County

Roaches pool: Obering 1 Morgan, NW SE SW 25-2s-1e, pumped 88 bbl., natural, pay 2,009-19 ft., Benoist 1,994 ft., T.D. 2,019 ft.

Lawrence County

Russellville pool: Frontier 4 G. Gillespie, E½ SE SW 13-4n-11w, 3,000,000 cu. ft. gas, Bridgeport sand 730-37 ft., 788-98 ft., T.D. 798 ft.

Logan County

Wildcat: Bay Oil 1 G. M. Lake, NE NE SW 11-20n-2w, dry, Silurian 1,503 ft., Maquoketa 1,820 ft., Trenton 2,016 ft., T.D. 2,165 ft.

Marion County

Patoka pool: Adams 4 Fryer, E½ NE SW 21-4n-1e, pumped 57 bbl., 30-qt. shot 1,427-42 ft., Benoist sand 1,423-42 ft., T.D. 1,442 ft.

East Patoka pool: Esperanza 1 C. B. Martin, SE SE SE SW 27-4n-1e, pumped 45 bbl. oil and 42 bbl. water, Cypress sand 1,370 ft., T.D. 1,384 ft.

Shell 2 Davidson, NW NE NE 34-4n-1e, pumped 74 bbl., 4-qt. shot 1,361-65 ft., 6-qt. shot 1,361-67 ft., Cypress sand 1,350-61 ft., T.D. 1,368 ft., P.B. 1,367 ft.

Salem pool: Hollingsworth 12 Kalkbrenner, NE NE SW 5-1n-2e, location abandoned, was to be old well drilled deeper.

McBride 17 N. L. Lee, SW NE SE 29-2n-2e, pumped 125 bbl., 50-qt. shot 4,621-51 ft., Trenton 4,524 ft., old well deepened from 3,428-4,651 ft.

Texas 21 W. Frederick A, SE NW SW 29-2n-2e, pumped 60 bbl. in 21 hr., 20-qt. shot 4,583-4,603 ft., Trenton 4,504 ft., old well deepened from 3,405-4,650 ft., P.B. 4,202 ft.

Texas 20 K. Wayman, SW SW SW 32-2n-2e, flowed 190 bbl., 140-qt. shot 4,483-4,553 ft., Trenton 4,447 ft., old well deepened from 3,360-4,578 ft.

Fairman pool: Shell 11 Ververs, SE SW NW 18-3n-1e, pumped 10 bbl. oil and 6 bbl. water, Benoist sand 1,436-42 ft., T.D. 1,442 ft.

Macoupin County

Wildcat: Bridges & Valbert 1 Felker, NW NE SW 1-9n-7w, dry, T.D. 1,613 ft.

Richland County

North Noble pool: Oilwell Drlg. 2 Hilborn, SE SE NW 24-4n-9e, pumped 27 bbl., 25-qt. shot 2,575-85 ft., Cypress sand 2,564 ft., T.D. 2,587 ft.

St. Clair County

Dupo pool: Tom Cain 1 R. R. Rite-of-way, NW NW SW SE 28-1n-10w, pumped 7 bbl. oil and 500 bbl. water, 30-qt. shot 478-528 ft., Trenton 484 ft., T.D. 528 ft.

Wildcat: Blan & Jeffries 1 H. Harris, SE NW SW SE 24-1n-10w, dry, Trenton 729 ft., T.D. 767 ft.

Wabash County

Allendale pool: Joe Young 2 Barney, SW SW SE NW 1-1n-12w, pumped 30 bbl., 15-qt. shot 2,033-45 ft., Benoist 2,033-45 ft., T.D. 2,046 ft.

Joe Young 8 Stillwell, NW NW SE 1-1n-12w, pumped 15 bbl., 40-qt. shot 2,018-34 ft., Benoist 2,026 ft., T.D. 2,204 ft., P.B. 2,078 ft.

Crosby Oil 1 Leek heirs, NE SE SW 1-1n-12w, dry, Menard 1,415 ft., Waltersburg 1,485 ft., Vienna 1,548 ft., Glen Dean 1,685 ft., Hardinsburg 1,706 ft., Golconda 1,788 ft., Barlow 1,862 ft., Benoist 2,030 ft., Ste. Genevieve 2,120 ft., Fredonia 2,156 ft., McClosky 2,200 ft., T.D. 2,246 ft., P.B. 2,100 ft.

Toomey 1 Lutz, SW NE NW 8-1n-12w, dry, T.D. 1,540 ft.

Mount Carmel pool: O'Meara 5 A. Gould, N½ NW SE 17-1s-12w, pumped 100 bbl. oil and 100 bbl. water from Rosiclare, 5,000 gal. acid, T.D. 2,369 ft.

O'Meara Bros. 6 Harris, SW SE SW SE 17-1s-12w, pumped 120 bbl. oil and 120 bbl. water, 15-qt. shot 1,544-52 ft., Biehl 1,540-52 ft., T.D. 1,552 ft.

O'Meara 3 Smith, SE NE SW 17-1s-12w, pumped 300 bbl., 5,000 gal. acid, McClosky 2,360 ft., T.D. 2,369 ft.

O'Meara Bros. 6 Gould, SE NW SE 17-1s-12w, pumped 75 bbl., 15-qt. shot 2,015-30 ft., Cypress sand 2,015 ft., T.D. 2,050 ft.

Shell 4 S. B. Risley, NE SE SW 17-1s-12w, pumped 125 bbl., 10-qt. shot 2,037-44 ft., Cypress sand 2,020-32 ft., Renault 2,242 ft., T.D. 2,385 ft., P.B. 2,048 ft.

Stroube & Stroube 1 Mount Carmel Comm., SW SW NW 17-1s-12w, pumped 188 bbl., 20-qt. shot 2,061-74 ft., Cypress sand 2,062-66 ft., T.D. 2,074 ft.

Stroube & Stroube 1 Wetzel, SE SE SE NE 18-1s-12w, pumped 152 bbl., 20-qt. shot 2,068-81 ft., Cypress sand 2,069 ft., T.D. 2,081 ft.

Hall-Jordan 2 Canedy, NW NW NE 20-1s-12w, pumped 142 bbl., 10-qt. shot 2,037-42 ft., Cypress sand 2,034 ft., perf. Biehl sand 1,505-66 ft., T.D. 2,042 ft.

Hall-Jordan 2 M. J. Coffman, Lot 20, Blk. 212, Mount Carmel, 20-1s-12w, pumped 20 bbl., Biehl 1,509 ft., T.D. 1,529 ft.

Hall-Jordan 1 Elkins, NE¼, Blk. 191, Mount Carmel, 20-1s-12w, pumped 60 bbl., 500 gal. acid, perf. 2,064-71 ft., 2,400-07 ft., 2,394-96 ft., Cypress sand 2,064-78 ft., McClosky 2,399-2,405 ft., T.D. 2,420 ft.

Hall-Jordan 1 B. Landes, N½ S½ SW 20-1s-12w, pumped 89 bbl. oil and 42 bbl. water, 5,000 gal. acid, 2,000 gal. reacid, perf. 2,382-98 ft., 2,056-62 ft., McClosky 2,388-91 ft., Cypress sand 2,054-64 ft., T.D. 2,401 ft., P.B. 2,399 ft.

Hall-Jordan 1 Standring, N½ SE SE NW 20-1s-12w, pumped 5 bbl., Biehl 1,492-1,507 ft., T.D. 1,610 ft., P.B. 1,529 ft.

Mid-Cont. 2 L. Jacques, SW SW NW NE 20-1s-12w, pumped 305 bbl., 5,000 gal. acid, perf. McClosky, T.D. 2,443 ft.

L. B. Jackson 1 Smith, N½ NE NW 20-1s-12w, pumped 54 bbl., 4,000 gal. acid, McClosky 2,378-83 ft., T.D. 2,394 ft.

Glister & Smith 1 Stein heirs, N½ NE SE 29-1s-12w, location abandoned.

Maud pool: J. W. McCummings 2 Grundar, SW SE NE 34-1s-13w, pumped 98 bbl., 3,000 gal. acid, McClosky 2,636 ft., T.D. 2,642 ft.

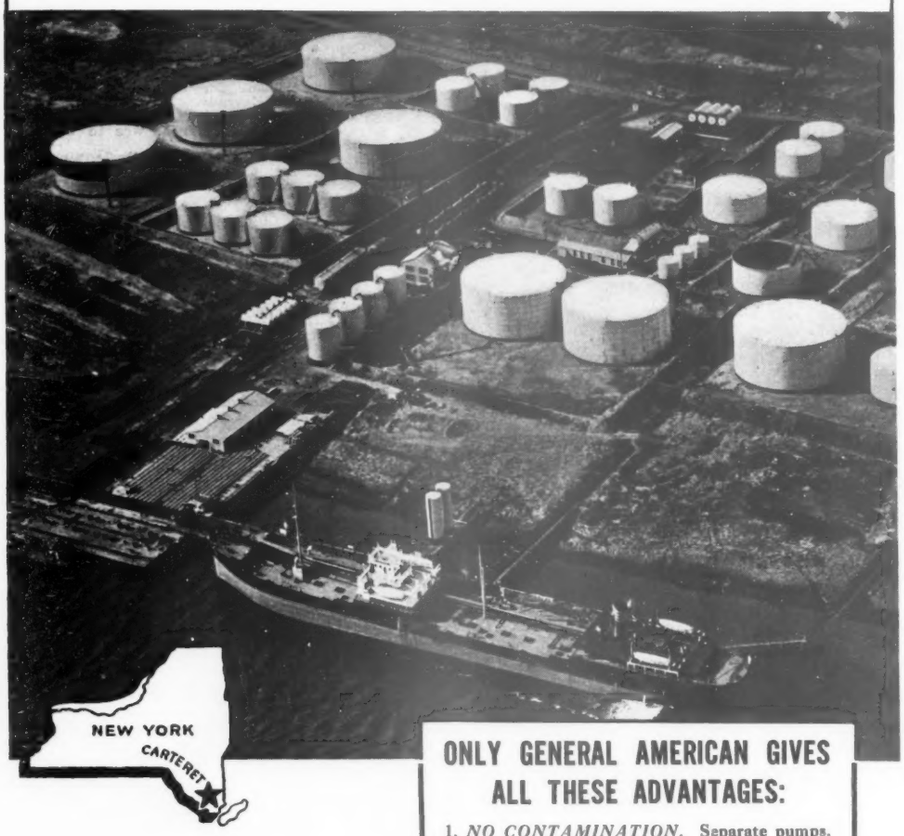
Washington County

Irvington pool: Magnolia 8 O. Rahn, NE NE NE 22-1s-1w, pumped 185 bbl., 10-qt. shot 1,534-38 ft., Benoist 1,529 ft., T.D. 1,559 ft.

Wayne County

West Enterprise pool: Pure 1 Ulm, W½ SW NE 1-1n-

Across the bay from the Great White Way



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7e, flowed 332 bbl., 5,000 gal. acid, Fredonia 3,009 ft., pay 3,020-31 ft., 3,051-54 ft., T.D. 3,090 ft.

Enterprise pool: Pure 3 J. S. Hubble-B, W½ SE SW 32-2n-8e, pumped 16 bbl. oil and 157 bbl. water, 5,000 gal. acid, McClosky 3,028-30 ft., 3,037-40 ft., 3,067-73 ft., T.D. 3,107 ft.

Wildcat: Carter 1 Harrison-St. Ledger, SE NW 34-1s-9e, dry, Paint Creek 3,050 ft., Benoist 3,074 ft., Renault 3,136 ft., Aux Vases 3,203 ft., Ste. Genevieve 3,241 ft., Rosiclare 3,248 ft., Fredonia 3,260 ft., McClosky 3,321 ft., St. Louis 3,395 ft., T.D. 3,414 ft.

White County

North New Harmony pool: Superior 8 E. M. Fitton, SW SW SW 23-4s-14w, old well worked over, T.D. 2,937 ft., perf. 2,116-25 ft., 2,171-91 ft., 2,586-95 ft., 2,647-64 ft.

Sun 5 E. R. Greathouse, NE NW NW 4-5s-14w, old well deepened from 2,914-74 ft., no additional pay, was pumping 1 bbl. a day, P.B. 2,862 ft., ripped casing in Aux Vases 2,839-49 ft., 60-qt. shot 2,834-60 ft., pumped 40 bbl.

Mill Shoals pool: Allund et al 1 W. A. Felix, SW SE SE NE 19-3s-8e, pumped 110 bbl., 95-qt. shot 3,229-65 ft., Aux Vases 3,220-42 ft., T.D. 3,265 ft.

Texas 7 Poorman, SE NW SE 19-3s-8e, dry, Menard 2,405 ft., Waltersburg 2,470 ft., Glen Dean 2,625 ft., Hardinsburg 2,680 ft., Golconda 2,765 ft., Barlow 2,880 ft., Cypress 2,890 ft., Cypress sand 2,935 ft., Paint Creek 3,005 ft., Benoist 3,085 ft., Renault 3,145 ft., Aux Vases 3,216 ft., Ste. Genevieve 3,250 ft., Rosiclare 3,317 ft., Fredonia 3,328 ft., St. Louis 3,410 ft., T.D. 3,487 ft., P.B. 3,245 ft.

East Calvin pool: Pure 12 Potter, NE SW NW 9-4s-14w, pumped 95 bbl., 80-qt. shot 2,811-40 ft., 35-qt. shot 2,704-17 ft., T.D. 2,840 ft., Aux Vases 2,810-36 ft.

Delta Drlg. 7 Boltinghouse, SW SW NW 16-4s-14w, pumped 100 bbl., 25 per cent water, 30-qt. shot 2,584-2,600 ft., Cypress sand 2,576-2,600 ft., T.D. 2,600 ft.

Delta Drlg. 8 Boltinghouse, NW SW NW 16-4s-14w, pumped 100 bbl., 20 per cent water, 20-qt. shot 2,588-2,600 ft., Cypress sand 2,584-2,600 ft., T.D. 2,600 ft.

Skelly 3 Daly A, SW SW NE SW 17-4s-14w, pumped 106 bbl., 20-qt. shot 2,259-67 ft., Tar Springs 2,254-82 ft., T.D. 2,282 ft.

ILLINOIS DRILLING REPORT

Clay County

A. R. Madden 1 Ging ..... SE SE NE 17-5n-5e Barlow 2,125 ft., Cypress 2,161 ft., Cypress sand 2,176-2,206 ft., 2,224-39 ft., Paint Creek 2,239 ft., Benoist 2,313-44 ft., Renault 2,344 ft., Aux Vases 2,373-97 ft., ran electric log, show oil, rigging up standard tools.

Clinton County

B. E. Martin 1 Brinkmann ... SW SW SW SE 9-1n-2w Tar Springs 840 ft., Glen Dean 938 ft., Golconda 987 ft., hole full water 1,155 ft., T.D. 1,195 ft.

Algona 1 Marshall ..... SE SE SW 12-1n-1w S.D. 2,950 ft.

P. Mosebach 1 Schlarmann .... NE NW NW 9-1n-3w T.D. 4,213 ft., P.B. 2,450 ft., drilled out to 2,459 ft., cleaning out.

A. Niehoff 1 Fehrmann .... N½ NW NW NE 23-1n-4w Set 10-in. 100 ft., S.D. 195 ft.

Obering et al 1 Yantis ..... NE SE 27-3n-1w Base Pennsylvanian 960 ft., Menard 960 ft., Tar Springs 1,065 ft., Glen Dean 1,140 ft., Cypress 1,301 ft., Cypress sand 1,310 ft., Paint Creek 1,380 ft., Benoist 1,446 ft., Renault 1,472 ft., Aux Vases 1,489 ft., Ste. Genevieve 1,570 ft., Rosiclare 1,589 ft., Fredonia 1,608 ft., McClosky 1,609-14 ft., St. Louis 1,670 ft., Salem 1,815 ft., Osage 2,174 ft., drilling 2,435 ft.

Hughes 2 Holman ..... NE SW SE 10-2n-1w Drilling 1,300 ft.

Wilson 1 Lippert ..... NE NE NE 27-2n-1w Cored 1,269-74 ft., received 3 ft. bad lime, cored Golconda by mistake, S.D. 1,274 ft.

Du Page County

I. C. R. Synd. 1 Bartlett Village .. SE NW NW 2-40n-9e Spud, first report.

Edgar County

Levy et al 1 Cockroft ..... SW SE SE 11-12n-11w Set 10-in. 110 ft., drilling 150 ft.

Effingham County

Lynch & Jansen 1 J. Burk ..... W½ SE NW 27-6n-5e Moving in rotary tools.

Fayette County

J. T. Elmore 1 Keith ..... SE NE NW 18-6n-1w Set 10-in. 413 ft., S.D. 420 ft.

Turner Drlg. 1 Williams ..... SW SW NW 6-6n-2e Drilling 860 ft.

Texas 1 R. A. Helm ..... SW NE SE 18-6n-3e Set 10-in. 93 ft., drilling 1,325 ft.

Ford County

Nelson et al 1 Erp ..... SW NW SE 19-24n-7e Drilling 2,760 ft.

Franklin County

Sampson 1 Rice ..... NE SW NE 35-6s-2e Location, first report.

W. O. Morgan 1 J. P. Miner .... NW NW NE 36-6s-2e Tar Springs 2,114 ft., cored 2,118-28 ft., received 10 ft. saturated sand, running casing, T.D. 2,128 ft.

Gallatin County

Fitzgerrell 1 Doherty .....W½ W½ NW 24-8s-9e Rig, first report.

Duncan & Lester 1 E. A. Green .. NE NE NE 14-8s-8e Drilling 1,115 ft.

R. Halbert 1 Curry ..... SW SW NW 15-8s-10e Tar Springs 2,058-72 ft., T.D. 2,072 ft., 7-in. 2,056 ft., drilling plug.

Hamilton County

E. S. Adkins 1 Federal Chem. & Coke Co. ..... NW NW SE 17-7s-6e Base Pennsylvanian 2,045 ft., Kincaid 2,082 ft., Degonia 2,103 ft., Clore 2,150 ft., Palestine 2,178 ft., Menard 2,223 ft., Waltersburg 2,320 ft., Tar Springs 2,380 ft., Tar Springs sand 2,410 ft., 30-min. D.S. test 2,426-42 ft., received water, drilling ahead.

Cameron Bros. 1 Hern ..... NE SE SW 7-6s-7e Barlow 2,688 ft., Cypress 2,698 ft., Cypress sand 2,785-2,873 ft., Benoist 2,986 ft., pay 2,905-31 ft., T.D. 3,005 ft., 7-in. 2,910 ft., waiting on cement.

Kingwood-Sinclair 1 Prince .... NW SW NW 31-5s-7e

(Continued on Page 80)

Cockfield Trend Wildcat East Of Muralla Tests Oil Show

By F. L. SINGLETON

CORPUS CHRISTI, Tex., Apr. 7.—Main interest in the Southwest Texas district at the close of the week was centered on E. R. Thomas 1 E. A. Parr, a wildcat located on the Duval County sector of the Cockfield trend which is preparing for a production test. The well was drilled to a total depth of 5,025 ft., and 5½-in. casing was being cemented after a series of drill-stem tests in the Cockfield sand at 4,710-20 ft. showed promise of production.

Sand with an oil odor was cored at 4,711-16 ft., and a 6-minute test recovered 40 ft. of oil and tested 175 lb. working pressure. Sand was cored at 4,716-20 ft., and a 25-minute test of the section recovered 200 ft. of oil, and tested 29 lb. working pressure. Additional sand showing oil was cored at 4,720-25 ft., while shaly sand with an oil odor and salty taste was cored at 4,725-39 ft. The well is located in Block 18 of the Thomas Lockhart subdivision of the Parr lands, in the J. Adams Survey 11, about 1 mile east of the Muralla field.

SUMMARY OF COMPLETIONS

Lower Gulf Coast

	No.	Bbl.	Footage
Oil wells: Fields	10	1,209	54,764
Dry holes: Fields	1	.....	6,902
Wildcats	1	.....	11,266
Total	12	.....	72,932

Laredo District

Oil wells: Colorado	1	168	2,974
Other fields	7	797	14,193
Gas wells:	1	.....	2,636
Dry holes: Fields	1	.....	1,276
Wildcats	3	.....	11,425
Total	13	.....	32,504

San Antonio District

Oil wells: Fields	1	404	2,153
Dry holes: Wildcats	2	.....	3,305
Total	3	.....	5,458

In the same county and located in the Sejita area, Henderson Coquat 1 Delores Garcia was abandoned at a total depth of 5,500 ft. after an electrical survey failed to reveal any shows of commercial importance. Another interesting test is scheduled to be started along this trend as Sun Oil Co. announced location for 1-B Black, 3 miles northeast of the Fitzsimmons field in the P. de la Zerda Survey, Section 7. The location is about 1,350 ft. southeast of the company's 1 Black, a recent dry hole.

A dry gas field was opened in Jim Hogg County by the completion of Forest Development Co. 1 Ramirez, a wildcat 3½ miles west of the Colorado field which is shut in after flowing an unestimated amount of gas through perforated casing in the Mirando sand at 1,998-2,001 ft. This well was drilled to the Pettus sand at 3,006 ft., and 5½-in. casing was cemented at 2,135 ft. This particular area has within the past few weeks been extremely active, resulting from the expansion of proven fields which were opened along the trend during the past year.

Development Extends Rincon Field

The Rincon field, Starr County, which is one of the district's most outstanding fields, continues to be extended. The latest extension was made by Continental 20-A T. B. Slick, 2,000 ft. southeast of the field which flowed at the estimated rate of 200 bbl. per day through a ¼-in. choke from perforated casing at 4,650-58 ft. Along this same trend and located west of production in the North Rincon field, Sun 3 Coates is drilling in sandy shale below 4,957 ft. following a 20-minute drill-stem test at 4,390-4,401 ft., which recovered 140 ft.

WILDCAT FAILURES.—W. H. Holland 1 Benavides, 1 mile north of the West Cole field, Webb County, has been abandoned after the well swabbed salt water with no show of oil from the Mirando sand at 2,367-71 ft. This section was reported to have carried an odor of oil, and 5½-in. casing was cemented for the production test after two attempted drill-stem tests failed. Two other wildcats were marked off the list as dry holes. Three miles west of the Glen field, Buffalo Oil Co. 1 Ward was abandoned at 2,011 ft., while northeast of the Oilton field, Transwestern 1 De la Garza was quit at a total depth of 2,420 ft., following a 50-minute drill-stem test at 2,304-23 ft., which recovered 30 ft. of oil-cut mud and 2 lb. working pressure. Additional development is expected to be announced for this area.

In the Nichols field, Hidalgo County, Royalty Oil & Gas Co. 1 Garcia is drilling deeper after drill-stem testing in the expected pay horizon showed minor results. These tests were made at 3,173-77 ft., 3,641-51 ft., and at 3,651-61 ft. Some oil and gas-cut mud was recovered and working pressure built up to a maximum of 125 lb.

In the Corpus Christi area, semiwildcatting along the Agua Dulce-Stratton trend is expected to be curtailed to some extent by the abandonment of Shasta Oil Co. 1 Von Blucher at a total depth of 7,617 ft. with no shows of oil or gas reported. The well is located in the A. F. de la Fuente grant, about 3,850 ft. southeast of F. A. Gillespie 1 Dabney, a gas-distillate well located about 1½ miles east of the field.

Outpost Tests Nearing Completion

While this well was being abandoned, H. H. Howell was running casing preparatory to testing 3 Schultz which is expected to extend production on the southeast flank several hundred feet north. The hole is bottomed at 6,541 ft., and an electrical survey showed oil sand at 6,494-6,522 ft.

Interest in this trend is now centered on two important outpost tests which are nearing the expected pay horizon. Northeast of production at Agua Dulce, Osborn and Mid-Continent 1 Burow is drilling in shale below 6,620 ft., while on the north flank of the Stratton field, Seaboard 1 Kansas City Life Insurance Co. is drilling in shale below 6,233 ft.

One mile north of the field, drilling was scheduled to get under way on R. W. Hawn 1 Wofford et al, located in Section 205, Bishop Palo Alto subdivision. Considerable protection is held by several companies and the completion of the well as a producer would increase activity considerably. At a recent date there were 18 active operations reported in this area, making it the most active in the district.

Southern Minerals 1 R. H. Wood, the discovery well of the Woodsboro field, Refugio County, continues to show a large percentage of salt water while testing from an original completion depth of 5,900-03 ft. A recent gage showed the well to be flowing 350 bbl. of fluid per day through a ¼-in. choke, of which 30 per cent was oil and the balance salt water. Tubing pressure was 525 lb. and shut-in casing pressure 2,025 lb.

Salt Water Shows at Willamar Outpost

Pan American 1 Kent, about 1½ miles northwest of the discovery well of the Willamar field, Willacy County, continues to test through perforated casing at 7,925-70 ft., and on a recent gage the well flowed 104 bbl. of 29.9-gravity oil per day through a ¼-in. choke. Tubing pressure was 175 lb. Southeast of the discovery well the company's 1-B Community was being retested after perforating casing at 7,849-51 ft.

Interest in the Balcones fault-line district was centered on Marts & Beaven 1-A Walker, a wildcat 5½ miles east of Elgin, Bastrop County, which is reported to be plugging back from the Edwards lime at 3,350 ft., preparatory to testing the Austin chalk in which showings of oil were logged at intervals from 2,600-2,920 ft. Location is in the George J. Glasscock Survey.

In Caldwell County H. F. Wilcox Oil & Gas Co. 1 Walker, 6 miles northeast of Luling in the W. J. Sneed Survey, topped the Edwards lime at 3,586 ft. and drilled the formation to a total depth of 3,630 ft. The lime was hard and dry, and an electrical survey was being run.

Humble 1 Catarina, 3 miles northwest of the Catarina townsite, Dimmit County, continues to attract attention as additional showings of oil are reported. Sand with an oil odor was cored at 4,656-61 ft., and sand with a salty taste was logged at 4,679-86 ft. The well is coring ahead in sandy shale below 4,745 ft. Sand and shale with an oil show was cored the previous week at intervals from 4,527-4,613 ft., but drill-stem testing recovered drilling mud with a small oil show.

In the same county, and located in the Carrizo Springs area, Diamond Half Oil Corp. 1 Kirk, 2,200 ft. southeast of the discovery well, is coring in shale below 2,610 ft. with no further showing reported, while northeast of the discovery well, Spencer Huck 1 McKnight & Catlett is drilling in shale below 2,288 ft. Slight shows are reported to have been logged up the hole in both wells, but are not considered sufficient to make commercial producers.

SOUTHWEST TEXAS COMPLETIONS

LOWER GULF COAST DISTRICT

Cameron County

Wildcat: Pure 4 Gatewood Newberry, dry, T.D. 11,266 ft.

Jim Wells County

La Gloria field: La Gloria Operators Committee 1 Lafferty, gas-distillate, perf. casing 5,980-6,105 ft., T.D. 6,902 ft.

Orange Grove field: Cities Service 1 Schuenemann, 52 bbl., 3/32-in. choke, perf. casing 5,081-91 ft., T.D. 5,100 ft.

Wade City field: Atlantic 4 Mueller, 99 bbl., 7/64-in. choke, perf. casing 4,793-95 ft., T.D. 4,800 ft.

Rodney DeLange 23 McNeil, 102 bbl., 7/64-in. choke, perf. casing 4,816-18 ft., T.D. 4,817 ft.

Nueces County

Agua Dulce field: Texon Royalty Co. 1-A Clara Driscoll, 80 bbl., ¼-in. choke, perf. casing 6,850-60 ft., T.D. 6,920 ft.

Richard King field: Southern Minerals 18-B King, 108 bbl., 7/64-in. choke, perf. casing 5,640-43½ ft., T.D. 5,654 ft.

Stratton field: Corpus Christi 17 Wardner, 159 bbl., ⅛-in. choke, perf. casing 6,572-82 ft., T.D. 6,608 ft.

Southern Minerals 12 Stratton, 89 bbl., 3/32-in. choke, perf. casing 6,401-22 ft., T.D. 6,625 ft.

Refugio County

Tom O'Connor field: Quintana 18 Heard, 477 bbl., ⅛-in. choke, perf. casing 5,887-93 ft., T.D. 5,925 ft.

San Patricio County

Midway field: Sam E. Wilson 1 Morris, dry, T.D. 6,517 ft.

Victoria County

Coleto Creek field: Albert Plummer 4-B Terrell, 38 bbl., ⅛-in. choke, T.D. 2,827 ft.

Heyser field: Gulf 49-B Traylor, 5 bbl., ⅛-in. choke, perf. casing 4,830-40 ft., T.D. 5,488 ft.

SOUTHWEST TEXAS DRILLING REPORT

Aransas County

Humble 1-246 State, Aransas Bay, T.D. 3,431 ft., drill stem stuck.

Calhoun County

Gulfboard 1-114 State, San Antonio Bay, 16-in. casing 150 ft.

Moore & Ahern 1 Moore & Innis, 1½ miles north of Seadrift, drilling shale in sidetracked hole 4,865 ft.

Goliad County

W. R. Davis 2-C Albrecht, Weser field, coring sand 8,505 ft., no show.

Jim Hogg County

Sun 1 Montalvo, 8 mi. S of Hebronville, drilling 715 ft.

Jim Wells County

J. H. Dunn 1 Branicky, G.H.&H. Sur. 11, drilling shale 4,200 ft.

La Salle County

Barnsdall et al 1 Sager, Sur. 903, coring shale 3,938 ft.

Quintana 3 Washburn, Sur. 88, Washburn field, drilling shale 6,076 ft.

Live Oak County

A. Humphries et al 1 L. S. Adams, Sec. 51, C. F. Simmons subd., coring 1,310 ft.

(Continued on Page 62)

Slaughter Field and Crockett County Area Lead Drilling

By
R. MARNE SANFORD

MIDLAND, Tex., Apr. 7.—Completions and new locations were both still on the increase in the West Texas district. During the past 7-day period there was a total of 60 new locations of which seven were either wildcats or semiwildcat field outpost locations. Completions totaled 47 of which three were failures. The previous week recorded 45 completions with one failure or 44 new wells each week for the past 2 weeks. New locations this week dropped off slightly from the previous week. The Slaughter field for another 7-day period led both the new completions and locations for the district. Slaughter recorded 19 new locations and 10 completions the past week.

Noelke Field Gets Pipe-Line Outlet

Along with greatly stimulated drilling in the Noelke field of western Crockett County came the announcement last week that a pipe-line outlet would be provided which would dispose of a maximum of 500 bbl. of crude oil daily from the shallow field. The Texas Co. has agreed to tie into its Texas-New Mexico Pipe Line Co. carrier near the field and will start taking oil within about 15 days. Only a short gathering system will be needed and contracts have already been let for their construction. The field will be a year old April 12 and has never had a pipe-line outlet, although several hundred barrels monthly have been trucked to nearby refineries. There are 14 producing wells in the shallow 1,200-ft. Yates sand field. The 35-gravity oil of the field will bring a top price of 92 cents per barrel under the recent West Texas price increase of 7 cents per barrel.

Meanwhile, the two latest completions in the field have been officially gaged for large producers. All of the wells in the Noelke field are exceptionally large wells. Pittman & Atkins 1 Noelke was gaged the past week at 137 bbl. flowing in 1 hour or at the rate of 3,288 bbl. daily. J. T. Holmes 1 Noelke made 256 bbl. in 1 hour or at the rate of 6,144 bbl. daily. The former produced from 1,300-22 ft. and the latter from 1,146-57 ft.

Bean Area Gets New Locations

Several weeks ago a new discovery well was gaged in Crockett County and on the Bean ranch just 3 miles east of the Todd Deep field. The discovery was E. M. Wahlenmaier and Currie 1 Bean, SW NE Section 48, Block UV, G.C.&S.F. Survey. During the past week ⅝-mile northeast and ⅝-mile southeast outposts were staked to the discovery well. Just northeast of the strike, which made 196 bbl. in 22 hours from 1,451-56 ft., the same operators have staked 2 Bean, 660 ft. from the north and east lines of the same section, and 3 Bean in NE SE of the same section and just southeast of the strike.

The discovery well was less than ½ mile south of an old 1,273-ft. gas well drilled by Stanolind Oil & Gas Co. years ago, and also slightly more than ½ mile southeast of a small and later abandoned producer drilled by Moncrief and others. The discovery was 1 mile and 2 miles, respectively, southeast of 7,900-ft. and 8,000-ft. deep failures drilled during the preliminary exploration days on the large Todd ranch.

HOWARD COUNTY.—Two small extension location tests have been staked to proven area in Howard County. F. H. E. Oil Co. has located 1-B Denman, 2,310 ft. from the north and 330 ft. from the east lines of Section 16, Block 30, Twp. 1-S, T.&P. Survey. The other is Snyder 1-B Howard, 467 ft. from the west and 2,173 ft. from the south lines of Section 2, Block 30, Twp. 1-S, T.&P. Survey.

Ordovician Development Continues

Gulf Oil Corp. has staked another test in its 4-mile south extension area to the Sand Hills Ordovician field of Crane County. The south extension or new field, whichever it proves to be, was opened by the company's 17 Waddell, SE SE Section 15, Block 3, H.&T.C. Survey. The new location is 23 Waddell, NW NW Section 16, same block and survey, and about ½ mile south and slightly west of the discovery.

SUMMARY OF COMPLETIONS

	No.	Bbl.	Footage
Northern West Texas			
Oil: Slaughter field	8	5,295	40,025
Seminole field	6	3,132	31,888
Wasson field	6	5,274	26,055
Dry: Wildcat	1	.....	3,423
Total	21	.....	101,391
Southern West Texas			
Oil: Waddell field	3	6,508	11,728
Noelke field	2	9,432	2,479
Goldsmith field	3	5,946	12,733
North Cowden field	2	815	8,980
White & Baker field	2	623	4,089
O'Brien field	2	2,215	5,576
Other fields	10	4,465	35,213
Dry: Fields	2	.....	4,818
Total	26	.....	85,616
Texas Panhandle			
Oil wells: Carson County	2	307	6,255
Gray County	2	542	5,944
Hutchinson County	6	782	17,970
Total	10	.....	30,169
Southeast New Mexico			
Oil wells: Penrose field	2	132	7,370
Other fields	4	2,000	14,196
Total	6	.....	21,566

SOUTHERN WEST TEXAS COMPLETIONS

(24-hr. ratings based on last 3 hr. of 6-hr. gage)

Crane County

Waddell field: Gulf 38 Waddell, 162 bbl., pumping, 320-qt. shot, 3,349-3,420 ft., P.B. from 3,662 ft. T.D.
Gulf 39 Waddell, 384 bbl., open tubing, 5,000 gal. acid, 3,452-3,516 ft.
Gulf 20 Waddell, 5,962 bbl., open tubing, 5,000 gal. acid, 4,378-4,550 ft.
Sand Hills Ordovician field: Gulf 17 Waddell, 1,242 bbl., open tubing, 7,000 gal. acid, 5,635-49 ft., top Ellenburger 5,584 ft.

Crockett County

Noelke field: Pittman & Atkins 1 Bouscaren, dry at 1,705 ft.
Pittman & Atkins 1 Noelke, 137 bbl. an hour, rate of 3,288 bbl. daily, open casing, natural, 1,300-22 ft.
J. T. Holmes 1 Noelke, 256 bbl. an hr., rate of 6,144 bbl. daily, open casing natural, 1,146-57 ft.
Crockett field: Lutex Oil 5 University, 96 bbl. oil, 10 per cent water, 23-qt. shot, 1,542-1,650 ft.

Ector County

Jordan field: Atlantic 1-F University, 121 bbl., 1-in. choke, 295-qt. shot, 3,560-3,630 ft.
Johnson field: Carlos Oil 1 Johnson, 331 bbl., ⅛-in. choke, 250-qt. shot, 4,088-4,155 ft.
Judkins field: C. O. Davis 1 Judkins, 1,162 bbl., open tubing, 650-qt. shot, 4,220-4,335 ft.
Foster field: Gerhig Co. 2 Gist, 243 bbl., 1-in. choke, 330-qt. shot, 4,220-4,314 ft.
Goldsmith field: Gulf 342 Goldsmith, 1,252 bbl., open casing, 4,000 gal. acid, 4,192-4,252 ft.
Gulf 344 Goldsmith, 1,419 bbl., open casing, 4,000 gal. acid, 4,200-58 ft.
Gulf 346 Goldsmith, 3,275 bbl., open casing, 4,000 gal. acid, 4,160-4,223 ft.
Embar field: Phillips 3 Embar, 112 bbl., 1.4 per cent water, 14/64-in. choke, 1,000 gal. acid, 4,204-79 ft.
North Cowden field: Stanolind 10-A Smith, 97 bbl., ¾-in. choke, 535-qt. shot, 4,200-4,400 ft.
T. & P. Coal & Oil 9 Holt, 718 bbl., open casing, 610-qt. shot, 4,445-4,580 ft.

Pecos County

White & Baker field: Childress Royalty 1-B White & Baker, 551 bbl., ½-in. choke, 30-qt. shot, 2,028-91 ft.
Shasta Oil 4 White & Baker, 72 bbl., open tubing, 50-qt. shot, 1,975-98 ft.
Taylor-Link field: Landreth Prod. 1-L University, 182 bbl., open tubing, 10 per cent water, 1,000 gal. acid, 1,669-96 ft.

Upton County

McCamey field: Trebol Oil 2 Rogers, 457 bbl., open tubing, 2,000 gal. acid, 2,601-2,710 ft.

Ward County

Hutchins field: Gulf 154 Hutchins, 519 bbl., open casing, 360-qt. shot, 2,685-2,795 ft.
O'Brien field: Gulf 163 O'Brien, 978 bbl., open casing, 470-qt. shot, 2,630-2,797 ft.
Gulf 165 O'Brien, 1,237 bbl., open casing, 330-qt. shot, 2,592-2,779 ft.
South Magnolia-Sealy field: Magnolia 7-41 Sealy, dry at 3,113 ft.

SOUTHERN WEST TEXAS WILDCAT REPORT

Crane County

Gulf 1-F University, SE SE Sec. 22, Blk. 31, University Sur., top Simpson 9,600 ft., drilling 10,507 ft.
Eastham & Russell 1 McClintic, NE SE Sec. 210, Blk. F, C.C.S.D.&R.G.N.G. Sur., 7-in. 2,517 ft., 5½-in. 2,870 ft., show oil 2,882-87 ft., drilling 3,170 ft.

Crockett County

George T. Morris 1 Brock Hoover, SW SE Sec. 99, Blk. 1, I.&G.N. Sur., 2,000-ft. test, S.D. 1,037 ft.

Ector County

Cities Service 1 F. V. Addis, SW SE Sec. 34, Blk. 43, Twp. 2s, T.&P. Sur., drilled in new hole to 5,500 ft., P.B. 4,210 ft., bailing hole.
Forest Development Co. 1-C Edwards, SE SE SW Sec. 20, Blk. 43, Twp. 3s, T.&P. Sur., top anhydrite 1,760 ft., T.D. 4,106 ft., casing set at 4,026 ft., prep. test.
M. D. O'Quinn 1 TXL, SE NW W½ Sec. 31, Blk. 44, Twp. 3s, T.&P. Sur., location.

Loving County

H. C. McAuley 1 E. Hall, SE Sec. 60, Blk. 7, W.N.&W. Sur., T.D. 4,820 ft., P.B. 4,803 ft., testing water shut-off.
Pinal Dome Oil 1 Michigan Oil fee, NW SW Sec. 15, Blk. 26-C, P.S.L. Sur., 5,300-ft. test, 10-in. at 1,172 ft., T.D., waiting on cement.

Pecos County

Stanolind 1 Conry-Davis, SW SW SW Sec. 31, Blk. 9, H.&G.N. Sur., Ordovician test in Abell area, top anhydrite 365 ft., Yates sand 1,120 ft., T.D. 3,002 ft., reaming to bottom to set casing.
O'Quinn 2 O'Neil, S½ Sec. 74, Blk. 10, H.&G.N. Sur., Ordovician test, T.D. 730 ft., reaming casing 679 ft.
Sinclair Prairie 1 Grove, Lot 9, Sec. 26, Blk. 9, H.&G.N. Sur., Ordovician test, drilling 1,820 ft.
Eastland Oil 1 Simmons, SW cor. Lot 12, Sec. 26, Blk. 9, H.&G.N. Sur., location.

Reagan County

Amerada 1-RA University, 1,980 ft. from N and 660 ft. from E lines of Sec. 3, Blk. 48, University Sur., Ellenburger lime test, 10¾-in. 650 ft.
H. Schooler 1 R. A. Wolters, NE NE Sec. 51, G.C.&S.F. Sur., 8¼-in. 1,262 ft., drilling 2,094 ft.

Reeves County

C. A. Kitsos 1 A. B. Buchard, SW Sec. 7, Blk. 58, P.S.L. Sur., Delaware test, drilling 748 ft.
Roy Johnson 1 Perkins, Sec. 18, Blk. 7-C, P.S.L. Sur., S.D. 3,355 ft., prepare to run casing.
J. T. Pemberton 1 fee, NE NE Sec. 2, Blk. 55, Twp. 7, T.&P. Sur., Delaware lime test, 7,500 ft., preparing to start.

Schleicher County

Harold B. Opp 1 Jackson, Sec. 41, Blk. LL, T.C. Sur., T.D. 6,155 ft., fishing tools.

Sutton County

S. B. Roberts 1 George Allison, NW NE Sec. 44, Blk. K, G.H.&S.A. Sur., S.D. 740 ft., casing.
Domain 1 G. S. Allison, SW NE Sec. 91, Blk. 9, T.W. N.G. Sur., Ellenburger lime test, S.D. 1,098 ft.

Terrell County

Texas Consolidated Oil 1 Holmes, NE NE Sec. 14, Blk. 2-A G.H.&S.A. Sur., 3,600-ft. test, 10-in. 1,100 ft., T.D. 1,275 ft., preparing to start up.
H. H. Sides 1 Rose, Sec. 15, Blk. 148, T.&St. L. Sur., drilling 720 ft.
L. M. Thomasson 3 Bates-Graham, 660 ft. from N and 2,490 ft. from W lines, Sec. 30, Blk. 1, I.&G.N. Sur., S.D. 950 ft.

Upton County

H. C. Wheeler 1 Kincaid, 2,173 ft. from N, 467 ft. from E lines, Sec. 1, G.C.&S.F. Sur., drilling 380 ft.
Pittman & Atkins 1 Fowler-Starnes, NW NE Sec. 89, G.C.&S.F. Sur., 3,500-ft. test, S.D. 420 ft.

Ward County

Fitzpatrick & Slack 1 Wilson, Sec. 145, Blk. 34, H.& T.C. Sur., 1½ mi. SE of discovery well, T.D. 5,034 ft., testing show gas and oil.
Gulf 6 Wristen, 1,997 ft. from SE and 1,980 ft. from NE lines, Sec. 18, Blk. 7, H.&T.C. Sur., drilling 6,686 ft.
Roeser & Pendleton, Inc., and Merry Bros. & Perini 1 Bird Hayes, 467 ft. from SE and SW lines Sec. 164, Blk. 34, H.&T.C. Sur., ¼ mi. N of discovery gas well, top saturation in Delaware sand 5,089 ft., T.D. 5,396 ft., P.B. 5,130 ft., shot 5,085-5,130 ft., no results, prepare to quit as failure.
J. E. Fitzpatrick 1 T. B. Pruit, SW SW Sec. 23, Blk. 1, W.&N.W. Sur., S.D. 140 ft.
Bells Wells 1 Wilson, NW SW Sec. 133, Blk. 34, H.& T.C. Sur., location.

Winkler County

Stanolind and Westbrook & Thompson 1 Hendrick, NW NW NW Sec. 18, Blk. 26, P.S.L. Sur., moving in material.
Sam Weiner 2 Halley, NW NE Sec. 7, Blk. 11-B, P.S.L. Sur., location.

NORTHERN WEST TEXAS

A definite 1-mile northern extension to the Hockley County portion of the vast Slaughter field was record

ed the past week as commercial quantities of oil were recovered at Magnolia 1 Maple Wilson. Located a mile north of production and in Labor 8, League 41, Maverick County School Lands Survey, the test last reported a swabbing gage of 2¾ bbl. of oil hourly, 90 per cent being pipe-line oil. Total depth is 4,955 ft. and it has been acidized with 1,500 and 3,000 gal. At last reports another 1,500-gal. treatment was being given through perforations from 4,933-45 ft.

North of production on the west side of the field and in Cochran County, the Magnolia 4 Woodley, Labor 1, League 57, Oldham County School Lands Survey, was being treated with 1,500 gal. of acid after swabbing 3 bbl. of oil hourly, natural, from pay drilled from 4,925-80 ft.

MARTIN COUNTY.—Appearing doubtful of commercial production, a deep Martin County wildcat was bottomed at total depth of 6,683 ft. at the close of the week while electrical survey was being made of the hole. It is Magnolia 1 N. B. Teague, Labor 10, League 260, Borden County School Land, in the northern part of the county. No shows of oil were drilled.

MITCHELL COUNTY.—One closely watched Mitchell County wildcat was officially quit as a failure the past week while another continued drilling below 2,475 ft. in lime. The active operation is Casebolt et al 1 F. E. Franklin, NE cor. NW Section 50, Block 27, T.&P. Survey. It is still carrying large 10-in. hole. The test is projected to the 3,000-ft. Westbrook field pay level. The failure was Peck & Croft 1 Jack Smith, SE NW Section 19, Block 26, T.&P. Survey. The test logged the top of the San Andres lime at 1,220 ft., top of the solid lime at 1,340 ft., top of the San Angelo lime at 1,930 ft., and was quit as a failure at a total depth of 3,423 ft.

NORTHERN WEST TEXAS COMPLETIONS

(24-hr. ratings based on last 3 hr. of 6-hr. gage)

Cochran County

Slaughter field: Osage 3-B Moore, 513 bbl., open tubing, 4,000 gal. acid, 5,010-63 ft.
Osage 4-B Moore, 447 bbl., open tubing, 9,500 gal. acid, 5,012-54 ft.

Gaines County

Seminole field: Amerada 3 Crain, 428 bbl., ½-in. choke, 2,000 gal. acid, 4,244-5,366 ft.
Amerada 3 Robertson, 490 bbl., ½-in. choke, 2,000 gal. acid, 5,158-5,265 ft.
Magnolia & Atlantic 10-195 H. & J., 400 bbl., ½-in. choke, 2,000 gal. acid, 5,165-5,261 ft.
Magnolia & Atlantic 8-217 H. & J., 541 bbl., ½-in. choke, 2,000 gal. acid, 5,237-5,340 ft.
Ohio Oil 7 Tippett, 759 bbl., ½-in. choke, natural, 5,088-5,271 ft.
Osage 2 Crain, 514 bbl., ½-in. choke, 4,000 gal. acid, 5,205-5,385 ft.

Hockley County

Slaughter field: Fain & Riner 3 Soash, 519 bbl., 1.5 per cent water, 6,000 gal. acid, 4,876-4,960 ft.
Honolulu Oil 2-A-4 Slaughter, 687 bbl., open tubing, 9,250 gal. acid, 4,910-90 ft.
S. W. Richardson 2 Coe, 869 bbl., open casing, 10,000 gal. acid, 4,900-98 ft.
S. W. Richardson 11 Slaughter, 1,074 bbl., 2-in. casing outlet, 10,000 gal. acid, 4,885-4,985 ft.
S. W. Richardson 6-B Slaughter, 679 bbl., 2-in. casing outlet, 10,000 gal. acid, 4,885-4,985 ft.
Tide Water Oil 1 Pirkle, 507 bbl., 2-in. casing outlet, 7,000 gal. acid, 4,880-4,990 ft.

Mitchell County

Wildcat: Peck & Croft 1 Jack Smith, top San Andres 1,220 ft., solid lime 1,340 ft., San Angelo 1,930 ft., dry at 3,423 ft.

Yoakum County

Wasson field: Aloco Oil 4 Randall, 238 bbl., 1.9 per cent water, pumping, 10,000 gal. acid, 4,935-5,265 ft.
Continental Oil 8 Stevens, 916 bbl., 1-in. choke, 9,800 gal. acid, 4,945-5,201 ft.
Denver Prod. & Ref. 14-A Whittenburg, 821 bbl., open tubing, 10,000 gal. acid, 4,825-5,126 ft.
Shell 13-B Baumgart, 1,507 bbl., open tubing, 10,000 gal. acid, 4,915-5,179 ft.
Sinclair Prairie 3 Willard, 846 bbl., 1-in. choke, 6,500 gal. acid, 5,063-5,285 ft.
T. & P. Coal & Oil 6 Hall, 946 bbl. 1-in. choke, 10,000 gal. acid, 4,917-5,200 ft.

NORTHERN WEST TEXAS WILDCAT REPORT

Andrews County

Phillips 1 University-Drews, NW NE Sec. 32, Blk. 10, University Lands Sur., drilling 6,981 ft.
Furham Pet. 1 Lockhart-Brown, Sec. 24, Blk. 42-A, P.S.L. Sur., T.D. 5,600 ft., P.B. 4,558 ft., treated 1,000 gal. acid, retreating 2,000 gal. acid, flowed 100 bbl. fluid in 24 hr., 2 per cent b.s. and w., still testing.
Mascho Oil 1 Fisher, NE NE SE Sec. 16, Blk. 36-A, P.S.L. Sur., location.

Borden County

M. L. Richards 1 W. R. Dunn, SW NE Sec. 307, Blk. 97, H.&T.C. Sur., 3,200-ft. test, location.
B. C. Mann 1 Canning & Reynolds, NW NE Sec. 151, Blk. 25, H.&T.C. Sur., 3,000-ft. test, location.

Cochran County

George Livermore 1 Wright, old T.D. 4,997 ft., S.D. 6,621 ft.

Gaines County

Amon G. Carter 4-D Wasson, NW SE Sec. 50, Blk. AX, P.S.L. Sur., logged new pay about 6,610 ft., tight well, application filed to drill to 11,000 ft., S.D. 10,078 ft.

Hale County

Humble 1 Byrd, SE SE NE Sec. 17, Blk. K, E.T.R.R. Sur., 9,000-ft. test, surface casing 516 ft., drilling ahead.

Hockley County

Magnolia 1 M. Wilson, SW cor. Labor 8, Lge. 41, Maverick C.S.L. Sur., 1½ mi. N of production in Slaughter field, drilled broken oil shows 4,850-70 ft., top anhydrite 2,150 ft., top salt 2,240 ft., top solid lime 4,020 ft., T.D. 4,955 ft., tested 1,000 gal., preparing to retest through perf. at 4,909-29 ft., retested with 5,000 gal., prepare to treat again with 1,500 gal., swabbed 2½ bbl. oil per hour.

Lubbock County

A. L. Henderson 1 W. D. McMillan, SE NW Sec. 4, Blk. 2-D, H.E.&W.T. Sur., location.

Martin County

Magnolia 1 N. D. Teague, NW NW Lab. 10, Lge. 260, Borden C.S.L. Sur., 5,500-ft. test, top anhydrite 1,930 ft., top brown lime 3,930 ft., solid lime 4,345 ft., T.D. 6,683 ft., may quit as failure.

Mitchell County

C. E. Casebolt 1 J. E. Franklin, NE NE NW Sec. 50, Blk. 27, T.&P. Sur., 15½-in. 170 ft., 12½-in. 256 ft., drilling 2,475 ft.

Yoakum County

George Livermore 1 Ownby, NE NE NE Sec. 502, Blk. D, Gibson Sur., drilled broken saturation 5,237-85 ft., flowed several heads oil, treated 3,500 gal. acid, flowed 121 bbl. daily, tested 2,360,000 cu. ft. gas daily, T.D. 5,348 ft., flowed 52 bbl. oil in 3 hr.

SOUTHEAST NEW MEXICO

HOBBS, N. M., Apr. 7.—New completions in Lea County fields featured a rather quiet 7-day period in the Southeast New Mexico district, there being little exploratory development reported and little work in the Eddy County fields. New wells were finaled in the Maljamar, Penrose, Eaves and Halfway fields of Lea County, while a wildcat failure was reported in Eddy County.

SOUTHEAST NEW MEXICO COMPLETIONS

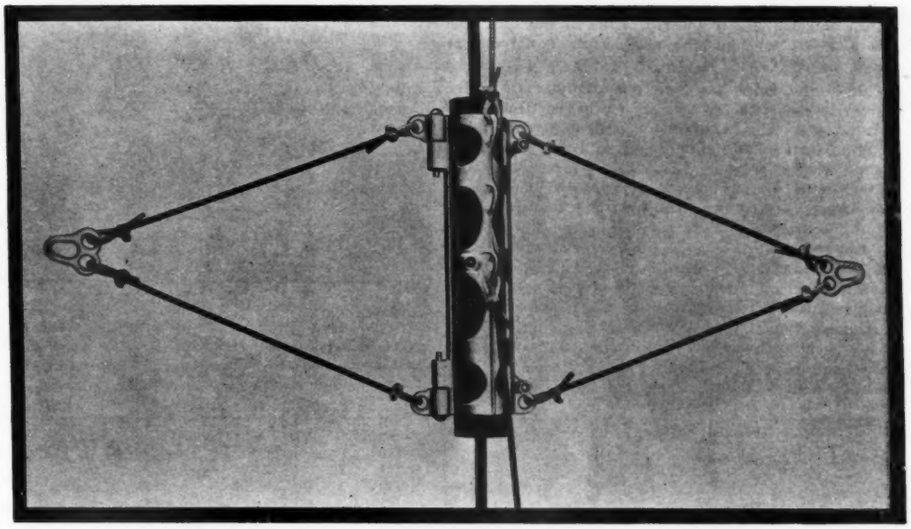
Eddy County

Wildcat: Mac T. Anderson 1 Brainard, NE NE 28-18-27, plugged as dry at 2,831 ft., total depth.

Lea County

Maljamar field: Barney Cockburn 4-A Pearsall, 33-17-32, flowed 153 bbl. in 4 hr., open tubing, 250-qt. shot, 3,860-3,955 ft.
Vacuum field: Phillips 42 Santa Fe, 26-17-35, flowed 167 bbl. in 14 hr., 20/64-in. choke, 4,250-4,550 ft.

(Continued on Page 72)



Wire Line Guide Service costs less than $1.00 per month

Five Texas wells, each more than 11,000 feet deep, were drilled with the Protectors shown in these unretouched photos. The Protectors are still in prime condition and show no loss in diameter. The Drillers estimate they are good for at least five or six more wells—a total of more than 100,000 feet of hole. That's a lot of hole—and a lot of service from one string of Protectors. Only the toughest kind of rubber can render such service. Patterson-Ballagh rubber can take punishment! It's compounded by exclusive Patterson-Ballagh methods.

See Composite Catalog

PATTERSON-BALLAGH CORPORATION

Los Angeles Houston New York City

PATTERSON-BALLAGH WIRE LINE GUIDES

By ROBERT INGRAM

Western Stafford County Gets New Pool North of Macksville

THE tenth new pool for 1941 was opened this week in Stafford County by Stanolind 1 Nagel, E½ NE SW 3-24-15w, north of the town of Macksville and northwest of the Jordan pool. The new well was given a potential of 271 bbl. a day from Kansas City lime at 3,828 ft., and the pool named Macksville.

It was drilled to a total depth of 4,155 ft., through the Arbuckle topped at 4,100 ft., but the deeper formation showed only fair porosity and slight saturation in cores and gave off a strong sulfur odor. Operators then plugged back to the top of the Kansas City lime at 3,828 ft., set 5-in. pipe, and completed the well at a depth of 3,839 ft.

Stafford County has been one of the most active areas in the state for several months, particularly at such new pools as Zenith, Stafford, Bedford, and Roach, and production has been pushed steadily southwestward along what is proving to be a highly productive cross trend of the Barton arch. The new Macksville pool is the most westerly production in the county and is thus encouraging to more prospecting in all directions.

And as the down trend in production continued both in Illinois and Michigan, refiners began looking more and more to the Mid-Continent in general and Kansas in particular for crude supplies. The state has been producing "under wraps" for a long time, and its actual potential is an unknown factor. However, it is considerably above present production and is rising steadily with continued wildcatting and exploration.

SUMMARY OF COMPLETIONS

Kansas

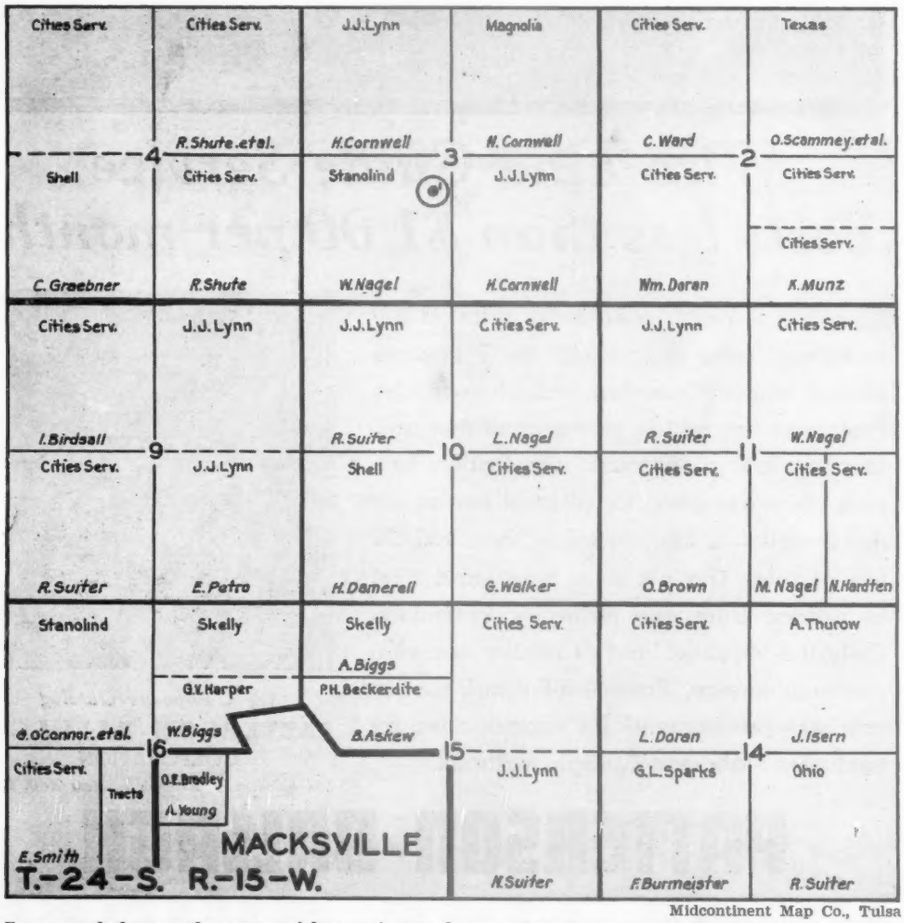
	No.	Bbl.	Footage
Oil wells: Burrton	2	406	6,765
Edwards	4	9,512	13,919
Geneseo	4	11,530	12,744
Hall-Gurney	3	3,468	9,116
Kraft	1	47	3,310
Silica	2	3,063	6,579
Stoltenberg	2	176	6,601
Trapp	2	5,460	6,692
Zenith	1	742	3,341
Other fields	12	8,140	37,451
Wildcat	1	271	4,155
Dry holes: Wildcats	4	.....	8,232
Total	38	.....	118,905

Nebraska

Oil wells: Shubert	1	15	2,515
Dry holes: Falls City	1	.....	2,314
Wildcats	1	.....	1,853
Total	3	.....	6,682

Among producers from other areas considering entering western Kansas was Union Oil Co. of California which showed some interest in the state about a year ago and last week was again reported to be making a study of conditions. Among the factors Union was said to be taking into consideration is the market demand of the entire Mid-Continent and midwestern region which draws on the fields of Illinois, Michigan, Oklahoma, and Kansas and parts of Texas.

Engineers were reporting back to Los Angeles some of the peculiar conditions found in Kansas which have helped prevent a full-blast development boom such as has characterized most of the other important oil areas of the nation. They noted that pay was found in horizons usually only a few feet thick, that most of the wells were treated with acid and many of them put on the pump as soon as completed. They were also concerned about the handling of salt water.



Midcontinent Map Co., Tulsa

Kansas marked up another new pool last week near the town of Macksville and 9 miles northwest of the Jordan pool where Stanolind et al 1 Nagel, E½ NE SW 3-24-15w, circled above, was completed for 271 bbl. a day from Kansas City lime at 3,828 ft. Leases and farm owners of surrounding acreage are also shown

AVERAGE DAILY PRODUCTION

LEADING KANSAS FIELDS

	Apr. 5	Mar. 29
Augusta	1,200	1,150
Bemis-Shutts	9,950	10,500
Bloomer	4,350	5,100
Burnett	7,350	6,850
Burrton	7,050	7,400
Chase	4,900	4,650
Elbing	1,100	1,000
El Dorado-Towanda	7,000	7,150
Geneseo	3,450	5,250
Graber	2,750	2,700
Greenwood County	8,750	8,500
Hollow-Nikkel	1,350	1,400
Keesling	1,550	900
Lerado	650	750
Lorraine	1,400	1,350
Oxford	650	700
Rainbow Bend	900	900
Raymond	700	1,150
Ritz-Canton	3,650	3,650
Trapp	15,800	14,800
Balance Russell County	22,900	20,200
Sedgwick County	3,150	3,100
Voshell	1,700	1,650
Silica	16,350	16,650
Wellington	1,100	1,050
Wherry	3,800	3,550
Zenith	7,300	7,200
Others	69,050	72,350
Total	209,850	211,650

They admitted, however, that the state was steadily increasing in importance as a producing area and was located about as favorably to markets as could be hoped for. They were also making careful note of drilling and production practices which have enabled operators to make their properties pay out nicely, such as the extensive use of slim holes and new pumping equipment.

Completions Are Up for Week

Meantime, wildcatting and development work continued apace with completions reported this week highly successful. Of a total of 38 wells completed, only four were dry holes and all of them were wildcats. One wildcat (the 1 Nagel) was successful. No dry holes were reported in fields, and the Ainsworth pool in Barton County had what appeared to be a mile-north extension at Continental 1 Charles Stoskopf, SE NW SW 28-16-13w.

Operators topped the Arbuckle formation at a depth of 3,391 ft., penetrated the lime to 3,403 ft., and set 7-in. casing at 3,391 ft.

Eastern Kansas was also drawing attention in the tristate Forest City basin as a drilling campaign appeared in the offing for Brown and Nemaha counties. Two wildcats are under way in Brown County—Gernon et al 1 Bruce, E½ SE SE 15-3-15e, and McAlpine 1 Tyler, NE SW SW 4-3-15e—and one in Nemaha County, Hibbard and Bumpus 1 Achten, S½ SE NW 12-4-14e. More than 70 per cent of the land in Brown County is under lease and at least 17 major companies hold blocks. Prospecting has been under way ever since the start of the Falls City play more than a year ago.

KANSAS COMPLETIONS

Barton County

Kraft pool: Skelly 2 Disque, NW NE 9-17-11w, 47 bbl., Arbuckle, T.D. 3,310 ft.

Silica, West: Virginia Drilling 3 Clawson, N½ NE NW 17-20-11w, swabbed 63 bbl., Arbuckle, T.D. 3,291 ft.

Broderick & Gordon 2 Sellee, SE NW SW 17-20-11w, 3,000 bbl., Arbuckle, T.D. 3,288 ft., acid.

Trapp pool: Shell 14-B Bitter, NW NW SW 5-16-13w, 2,460 bbl., Arbuckle, T.D. 3,327 ft., acid.
Darby Petroleum 3 Bitter, N½ SW NE 5-16-13w, 3,000 bbl., Arbuckle, T.D. 3,365 ft., acid.

Ellsworth County

Edwards pool: Continental 7 Fuller, N½ N¼ SE 28-17-8w, 512 bbl., Arbuckle, T.D. 3,227 ft.
Continental 8 Ploog, SW SW SW 27-17-8w, 3,000 bbl., Arbuckle, T.D. 3,225 ft.
Continental 5-A Ploog, SW NE SW 27-17-8w, 3,000 bbl., Arbuckle, T.D. 3,243 ft., acid.
Continental 10 Rolfs, NW NW NW 34-17-8w, 3,000 bbl., Arbuckle, T.D. 4,224 ft., acid.
Stoltenberg pool: Aylward 4 Ehler, N½ NE SW 35-16-10w, 79 bbl., Arbuckle, T.D. 3,319 ft.
Beardmore 7 Talsky, SW NE 8-16-10w, 97 bbl., Arbuckle, T.D. 3,282 ft.

Greenwood County

Wildcat: Hughes 1 McVay. NW SE NE NE 34-26-13e, dry, T.D. 340 ft.

Harvey County

Burrton pool: Hall-Jordan 1 Hurty, W½ NW 18-23-3w, 227 bbl., Mississippian chat, T.D. 3,381 ft.

Jefferson County

Wildcat: McCain & Sherron 1 Green, SW SW NW 9-11-19e, dry, T.D. 1,685 ft., Mississippi lime 1,535 ft., 6-in. 1,530 ft., H.F.W.

Marion County

Lost Springs pool: Ring-Mac 1 Novak, NE SE NE 32-17-4e, 360 bbl., Mississippi chat, T.D. 2,426 ft.
Youker & Engers 2 Bucher, SE SW NE 28-17-4e, 249 bbl., Mississippi chat, T.D. 2,492 ft.
Ring-Mac 2 Schick, NW NW NW 3-17-4e, 230 bbl., Mississippi chat, T.D. 2,414½ ft.

McPherson County

Wildcat: Rocket Drilling 1 Miller, W½ SW SE 12-17-1w, dry, T.D. 2,903 ft., Topeka 1,725 ft., Lansing 2,250 ft., Mississippi lime 2,872-2,903 ft.

Pawnee County

Pawnee Rock pool: Stanolind 2 Gates, S½ SE SW 13-20-16w, 925 bbl., Arbuckle, T.D. 3,866 ft.

Pratt County

Cunningham pool: Skelly 3 West Maxedon, E½ NE NW 25-27-11w, 551 bbl., Lansing-Kansas City lime, T.D. 3,441 ft.

Reno County

Burrton pool: Colorado Petroleum 4 Sabin, N½ S½ N½ 13-23-4w, 79 bbl., Mississippi chat, T.D. 3,384 ft.

Rice County

Bowman pool: Sharon Drilling 1 Herr, SW SW NE 21-19-10w, 103 bbl., Arbuckle, T.D. 3,294 ft.
Campbell pool: Carl Lesback, Hays 1 Sledd, NW SW NW 34-19-9w, 280 bbl., Arbuckle, T.D. 3,236 ft., acid.
Cramm pool: Harwood 4 Cramm, NW SW SE 15-19-9w, 1,038 bbl., Lansing-Kansas City lime, T.D. 3,190 ft.
Geneseo pool: Continental 8 Meyer, SE SW SW 30-18-7w, 3,000 bbl., Arbuckle, T.D. 3,205 ft., acid.
Continental 4 Poland, NE SW SE 30-18-7w, 3,000 bbl., Arbuckle, T.D. 3,165 ft.
Continental 8 S. Ainsworth, SW NE NE 25-18-8w, 3,000 bbl., Arbuckle, T.D. 3,187 ft.
Continental 7 B. Ainsworth, SW NW SE 24-18-8w, 2,538 bbl., Arbuckle, T.D. 3,187 ft., acid.
Keesling pool: Derby Oil 1 Dick, W½ SW NE 21-20-9w, 454 bbl., Arbuckle, T.D. 3,270 ft.
Raymond pool: Vickers 2-B Bayer, W½ SW NW 20-20-10w, 3,000 bbl., Arbuckle, T.D. 3,294 ft., acid.

Russell County

Big Creek pool: John Lindas 1 Boxberger, E½ SE SW 24-14-15w, 51 bbl., Gorham sand, T.D. 3,188 ft.
Hall-Gurney pool: Hartman & Blain 5 Boxberger, SE SW NE 26-14-14w, 416 bbl., Lansing-Kansas City lime, T.D. 3,036 ft., acid.
Coralena 7 Phinney, S½ NE NE 30-14-13w, 61 bbl., Lansing-Kansas City lime, T.D. 2,965 ft., acid.
Helmerich & Payne 7 Boxberger, NE NE 22-14-14w, 371 bbl., Lansing-Kansas City, T.D. 3,115 ft.
Wildcat: Central Petroleum 1 Zeman, SW SW NE 16-15-12w, dry, T.D. 3,304 ft., Lansing 2,965 ft., show oil, Sooy 3,254 ft., show oil, Arbuckle 3,292-3,304 ft.

Sedgwick County

Goodrich pool: Prunty 4 Black, NE NW NW 16-25-1e. 899 bbl., Misener dolomite, T.D. 3,341 ft., acid.

Stafford County

Zenith pool: Stanolind 5 R. Richardson, N½ S½ NW 10-24-11w, 742 bbl., pre-Pennsylvanian, T.D. 3,788 ft.
Wildcat (Macksville pool): Stanolind 1 Nagel, E½ NE SW 3-24-15w, flowed 271 bbl., 29-gravity, pay 3,839 ft., Arbuckle 4,100 ft., T.D. 4,155 ft., P.B. 3,828 ft., set 5-in., drilled to 3,839 ft.

KANSAS DRILLING REPORT

Barton County

Derby Oil 1 Heinz ..... W½ SW SW 18-18-11w Lansing 3,027 ft., base Kansas City 3,296 ft., Sooy 3,299 ft., drilling 3,310 ft.

Brown County

Gernon et al 1 Bruce ..... E½ SE SE 15-3-15e S.D. 510 ft.

Butler County

Rex & Morris 2 Matthews ..... NE SE NW 26-28-6e Underreaming 8-in. at 2,305 ft.

Cowley County

Trees Oil 1 Rhodes ..... NW SW SE 13-31-4e 8-in. 2,095 ft., 6-in. 2,615 ft., Bartlesville 2,875-90 ft., show gas 2,875-76 ft., Mississippi lime 2,920 ft., drilling 2,929 ft.
Aladdin 1 Westerfield ..... NE SW NW 3-32-8e Drilling 1,685 ft., 8-in. 1,580 ft.

Elk County

McPherson 1-A Batesman ..... SE SW NW 24-28-11e Drilling 800 ft.

Greenwood County

Octava-Leblanc 1 Mitchell ..... NW SW SE 20-27-12e First report.
Brinegar 1 Kellar ..... NW NW SE 28-26-13e First report.

Kearny County

Stanolind 1 Billinger ..... E½ SE SW 15-21-38w Topeka 3,660 ft., some show oil 3,709-13 ft., D.S. test 3,724-60 ft., 1,600 ft. water in hole in 20 min., fair porosity and some show oil 3,785-88 ft., fair porosity and saturation 3,793-98 ft., D.S. test 3,778-98 ft., 220 ft. water in hole and some show oil in 20 min., some show oil 3,798-3,805 ft., coring 3,960 ft.

McPherson County

Continental 1 Conrad ..... SE SW NE 31-19-5w Drilling 3,160 ft.
Westgate-Greenland 1-A Chindberg ..... W½ NW SE 18-18-1w First report.

Nemaha County

Bumpus 1 Achten ..... S½ SE NW 12-4-14e Fishing 2,245 ft., 6-in. 2,205 ft.

Norton County

Barnsdall 1 Ramsey ..... NE NW 35-1-21w First report.
Stearns & Vernon 1 Popp ..... NE SE NW 15-16-14w Fort Riley 1,845 ft., Neva 2,190 ft., drilling 2,335 ft.

Pratt County

George Reeves 1 Stark ..... W½ SW NW 18-26-11w Fort Riley 1,970 ft., base Florence 2,115 ft., Topeka 3,065 ft., drilling 3,329 ft.
Aladdin 1 Reschke ..... W½ SW SW 18-27-13w First report.

Russell County

Wakefield 1-A Cook ..... E½ SE NE 34-13-15w Drilling 950 ft., 15-in. 348 ft., 12-in. 598 ft.

Sedgwick County

Aylward 1 fee ..... E½ SW NW 35-27-2e Drilling 550 ft., 15-in. 94 ft.

Thomas County

Alva Billings 1 Ryan ..... E½ NE SE 27-8-32w Underreaming 6-in. at 4,245 ft.

Trego County

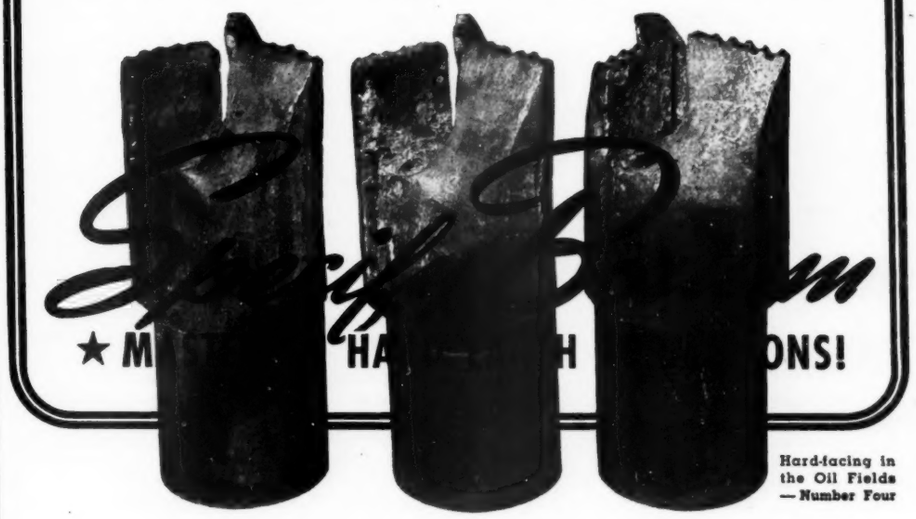
McKnab 1 Krysi ..... N½ NW NE 1-12-22w 12½-in. 152 ft.

FOREST CITY BASIN

ST. JOSEPH, Mo., Apr. 7.—The Ohio Oil Co. is expected in the near future to make the long-delayed Viola lime test of 2 Bucholz in the Falls City pool, C NW NW 17-1n-16e, east offset to the No. 1 Boice dis-

(Continued on Page 80)

FOR UNIFORM FOOTAGE AND MAXIMUM OUT-TO-GAUGE HOLE



Hard-facing in the Oil Fields — Number Four

For more than thirteen years Borium has been the standard by which all cast tungsten carbides are compared. Why? Simply because Borium Inserts and Tube Borium have proved their ability to cut hard earth formations—not once on one particular type of bit, but thousands of times on practically every make of bit!

Drillers and manufacturers know Borium is hard. They know, when properly applied, it will make full-gauged hole and lots of it. And—they know too, that the Borium or Tube Borium they use today will give them the same outstanding performance as the Borium they bought last week or last year.

The three 9⅞" three-way drag bits illustrated above were inlaid with Cobalt Borium Inserts, hard-faced with Acetylene Tube Borium and run in the Lake Charles (Louisiana) area. Bit No. 1 made 2100 feet; bit No. 2 made 2004 feet; and bit No. 3 made 1660 feet. All three are still out-to-gauge!

★

Why not specify Borium on the cutting and reaming edges of your bits and make sure that you get the most full-gauged hole every trip in any given formation?

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Manufacturers of Borium, Borod, Stoodite, Stoody Self-Hardening and other Hard Facing Metals

1134 WEST SLAUSON AVENUE, WHITTIER, CALIFORNIA

Harrison County, W. Va., Deep Test Nears 10,000-Ft. Mark

By STAFF CORRESPONDENT

PITTSBURGH, Pa., Apr. 7.—During the past week in the lower eastern fields, 17 operations were reported, of which 1 was dry and 16 were gas wells. In addition, two interesting deep wildcats were announced.

WEST VIRGINIA

In Ravenswood district, Jackson County, West Virginia, three additional tests are listed. The Columbian Carbon Co. will drill on the J. H. Boggess farm; the United Carbon Co. on the Mildred L. Thrash farm, and Joe Rubin et al on the W. B. Smith farm. This brings the total new work, mostly wildcat, to 14. None of the eight wells now drilling are close to the Lower Devonian.

In Harrison County Hope Natural Gas Co. is drilling the deep rotary test on the C. S. Gribble farm in Grant district at 9,991½ ft. In Morgan district, Monongalia County, their test is down 943 ft.

SUMMARY OF COMPLETIONS

West Virginia

	No.	Bbl.	Footage
Gas wells	11	*19.4	32,197
Dry holes	1	.....	684
Total	12	.....	32,881

Southwest Pennsylvania

	No.	Bbl.	Footage
Gas wells	5	*1.3	14,587

*Million cu. ft.

WEST VIRGINIA COMPLETIONS

Boone County

Scott district: Owens, Libby-Owens Gas 3 E. E. Chambers, 169,000 cu. ft. gas 24 hr. after shot, Big lime 1,235-1,442 ft., Big Injun 1,442-80 ft., Berea 1,916-49 ft., gas in Berea 1,918-47 ft., T.D. 1,979 ft.

Harrison County

Eagle district: Delaware Gas 2 Norval Davis, 120,000 cu. ft. gas, Speechley sand 3,286-3,308 ft., gas 3,295-97 ft., T.D. 3,359 ft.

Kanawha County

Washington district: Owens, Libby-Owens Gas 10 Siler Coal Land, 99,000 cu. ft. gas, brown shale, T.D. 3,747 ft.

Lincoln County

Washington district: United Carbon 2 Lincoln Mineral, 2,600,000 cu. ft. gas, Big lime 1,370-1,565 ft., Injun sand 1,565 ft., gas 1,550-60 ft., acidized with 1,500 gal., T.D. 1,571 ft.

Marshall County

Liberty district: Guy B. and A. G. Patterson 2 Olive Gray, 2,000 cu. ft. gas in Pittsburgh coal, top 676 ft., T.D. 684 ft., will abandon.

Putnam County

Curry district: United Fuel Gas 4999 C. H. Zirkle, 440,000 cu. ft. gas, Big lime 1,606-1,785 ft., Big Injun 1,785-1,870 ft., Berea 2,286-2,310 ft., brown shale 2,970-3,020 ft. and 3,450-3,842 ft.; gas 3,455 ft., 3,730 ft., and 3,750 ft.; T.D. 3,851 ft.

United Fuel Gas 5006 W. M. Caldwell, 62,360 cu. ft. gas, Big lime 1,575-1,757 ft., Big Injun 1,764-1,840 ft., Berea 2,286-2,310 ft., gas 1,800 ft., water 1,802 ft., shot 2,286-2,320 ft., T.D. 2,335 ft., R.P. 48 hr., 500 lb.

Haines Gas 1 J. W. Hollandsworth, 116,000 cu. ft. gas, Big lime 1,400-1,580 ft., Big Injun 1,612-40 ft., Berea 2,115-40 ft., T.D. 2,165 ft.

Summit Gas 3 J. H. Burdette, 94,000 cu. ft. gas, Big lime 1,660-1,830 ft., Big Injun 1,830-1,900 ft., Berea 2,339-62 ft., gas in Berea, T.D. 2,371 ft.

Wayne County

Union district: United Carbon 1 D. E. Belcher, 424,000 cu. ft. gas 29 hr. after shot, Big lime 1,077-1,245 ft., Big Injun 1,280-1,390 ft., Berea 1,855-67 ft., brown shale 2,285-2,768 ft.; gas 2,425-70, 2,480, 2,620, 2,760 and 2,765 ft.; T.D. 2,770 ft. Shot 3,200 lb. gelatine.

United Carbon 1 Shirley Sansom, 231,000 cu. ft. gas, Big lime 1,142-1,255 ft., Big Injun 1,331-1,451 ft., Berea 1,950-75 ft., brown shale 2,375-2,856 ft.; gas 2,430, 2,595, 2,700, 2,710 ft.; shot 2,367-2,862 ft. with 3,200 lb. gelatin; T.D. 2,862 ft.; R.P. 431 lb. in 14 hr.

ORISKANY GAS FIELDS

Jackson County

Tipley district: West Virginia Gas 1 F. L. Hockenberry, 16,000,000 cu. ft. gas before shot, Corniferous lime 5,068-5,174 ft., Oriskany sand 5,176-87 ft., gas 5,176-87 ft.; T.D. 5,187 ft.

Poca district: United Fuel Gas 4984 C.O. Slater, top Corniferous lime 4,923 ft.

United Carbon 2 D. D. Slater, top Corniferous lime 4,990 ft.

West Virginia Gas 2 J. H. Burdette, top Corniferous lime 4,887 ft., 7-in. casing to 4,902 ft.

SOUTHWEST PENNSYLVANIA

A new Oriskany wildcat is starting in Beaver County, Southwest Pennsylvania, where the St. Joseph Lead Co. has a location on the J. P. Korhler heirs 90 acres, in Center Township, located about 2½ miles southwest of Monaca. It is located after geophysical study.

In New Sewickley Township, Beaver County, L. D. McMichael et al have resumed drilling the Oriskany wildcat on the Elmer Pflug farm on Big Knob and reached 3,400 ft.

On Chestnut Ridge in South Union Township, Fayette County, New Penn Development Co., William E. Snee et al resumed drilling 3 Summit Hotel (Heyn) which had temporarily been bottomed at 6,609 ft. as the gas from the Onondaga chert beds was needed in the line, and it has reached 6,651 ft. The top of the Oriskany sand was 6,565 ft. and so far no gas has been found in that member. The formation is now somewhat limy.

Here Peoples Natural Gas Co., after having trouble with a crooked hole, cemented back to 4,800 ft. in 4 Piedmont Coal Co. and shut down waiting for it to harden. In North Union Township, Wasson & Co. et al reached 6,870 ft. in 2 J. H. Sorg.

On Laurel Ridge in Stewart Township, Fayette County, New Penn Development Co. et al resumed drilling the wildcat on the Gregg L. Neel farm and are now at 8,051 ft. The formation is darkening. In Maryland these operators have recemented in the test on the Humberson farm on the Accident dome in Garrett County. After trying to straighten the hole at 4,842 ft. where casing stuck, the old hole was lost.

SOUTHWEST PENNSYLVANIA COMPLETIONS

Fayette County

Menallen Township: Orville Eberly et al 2 Felix Valerio, 650,000 cu. ft. gas, Fifth sand 2,366 ft., gas 2,371-83 ft., T.D. 2,391 ft.

Greene County

Jackson Township: H. E. Milliken et al 1 E. Chaney, 134,000 cu. ft. gas, Bayard sand 3,404-15 ft., gas 3,414 ft., T.D. 3,493 ft.

Springhill Township: James H. Null et al 5 Null heirs, 200,000 cu. ft. gas, Maxton sand, T.D. 2,430 ft.

Washington Township: Equitable Gas 3566 John T. Huffman, drilled deeper from 3,110 ft., Fifth sand 3,106-11 ft., 27,000 cu. ft. gas at 3,106-09 ft., Bayard stray 3,122-37 ft., no new gas, T.D. 3,340 ft.

Washington County

West Finley Township: Natural Gas Co. of West Virginia 1 Robert Marshall, 327,000 cu. ft. gas, Fifty-foot sand 2,808-52 ft., gas 2,842 ft., T.D. 2,933 ft.

SOUTHWEST PENNSYLVANIA DRILLING REPORT

Armstrong County

Boggs Township: J. K. Sharp 2 James Sefton, rig.

Cowanshannock Township: William McCollins 1 A. L. McCullough, casing 785 ft.

George K. Gray 1 J. N. Biose, 1,662 ft.

Equitable 2 W. Carroll, casing 1,023 ft.

Equitable 3 W. Carroll, rig.

Kiskiminitas Township: Peoples 1 R. O. Hunter, 2,354 ft.

Kittanning Township: L. L. Livingood 1 H. Wright, 2,384 ft.

Local 1 Alex Dunmire, location.

Local 1 S. E. Heilman, 2,615 ft.

Manor Township: Local 1 Claude Wray, location.

Plum Creek Township: Peoples 1 Quinter Boyer, 984 ft.

James Wright 1 fee, 3,360 ft.

Parks Township: Peoples 1 William Keppler heirs, 3,095 ft.

Red Bank Township: Local 1 S. Kunselman, 851 ft.

South Bend Township: Equitable 1 Margaret Claypool, 809 ft.

Valley Township: Humphrey, Stone & McCall 1 J. McAfoose, 3,110 ft.

Wayne Township: John Wray et al 2 Ira Foster, location.

R. C. Galbraith et al 1 A. Rupp, location.

Clarion County

Limestone Township: Owens Illinois Glass 1 Clark Steel, 2,460 ft.

Monroe Township: Owens Illinois Glass 2 J. W. Aites, 2,806 ft.

Red Bank Township: T. W. Phillips 1 Daniel Wolfgang, 1,210 ft.

Fayette County

German Township: Greensboro Gas 1 Stephens Haningosky, 1,530 ft.

Menallen Township: J. H. Cornell 1 G. F. Newman, 240 ft.

Nicholson Township: Duquesne 2 Jacob Cover, 900 ft.

C. V. Emmers 1 Joseph Vaslaviski, 1,025 ft.

Nollem Oil & Gas 1 J. D. McCann, 1,645 ft.

Wahler-Powers Oil & Gas 2 Geneva Supply Co., 600 ft.

Springhill Township: Marker Stephenson 1 J. and A. Brojkovitch, 150 ft., S.D.

Greene County

Center Township: Manufacturers L. & H. Co. 1 E. W. Wood, rig.

Devine et al 1 Hugh Smith, 2,185 ft.

Jackson Township: Equitable 1 Clara Roberts, 2,046 ft.

Peoples 1 Roy L. Wise, 1,975 ft.

Cleveland-Cameron 1 Cleveland Morris, 3,160 ft.

Monongahela Township: Equitable 1 William Hart, 1,620 ft.

D. E. Mayne et al 1 Andrew Kovack, 2,310 ft.

Judson Bell et al 2 E. R. Gabler, 1,558 ft., S.D.

Judson Bell et al 3 E. R. Gabler, rig.

Brummage et al 1 Robert Whooley, 2,070 ft.

John Conklin et al 1 S. L. Mestrezar, 600 ft., S.D.

Morris Township: Romney Rutan et al 1 Albert Rutan, 1,900 ft., cemented.

Perry Township: Equitable 1 C. D. Wade, rig.

Richhill Township: Charles Hart et al 1 Ross Galloway, 580 ft.

Springhill Township: H. E. Milliken et al 1 John Minor, 2,120 ft.

Wayne Township: Lee Wise et al 1 Henry Hixenbaugh, 130 ft.

Whiteley Township: H. D. Freeland et al 1 Morris B. Fox, rig.

Indiana County

Armstrong Township: T. W. Phillips 1 Lewis Weiss, 3,113 ft.

Brush Valley Township: T. W. Phillips 2 Overdorff, 585 ft.

Center Township: T. W. Phillips 3 Helvetia Coal, 385 ft.

White Township: T. W. Phillips 2 Martha B. Campbell, rig.

Washington County

Amwell Township: Bungard et al 1 Lucille Frazee, 725 ft., S.D.

Hanover Township: D. D. Caldwell et al 3 Evaline Caldwell, 1,833 ft.

Morris Township: Conger et al 1 C. W. Archer, 2,043 ft.

Carnegie Natural 2 Nelan heirs, 2,525 ft.

Union Gasoline & Oil 5 W. E. Craft, rig.

Mount Pleasant Township: McGuigan Oil & Gas 1 H. S. Buchanan, 615 ft.

Somerset Township: Equitable 1 Jerry Myers, 1,271 ft., testing.

South Franklin Township: Foley & Williams 3 Clarence VanKirk, 1,080 ft.

West Bethlehem Township: Carnegie Natural 3 Chartiers Southern R. R., 3,060 ft.

West Finley Township: Local, Lilly Ackley, location.

Westmoreland County

Allegheny Township: Peoples 1 Howard Wise, Bradford sand 3,310-23 ft., 68,000 cu. ft. gas at 3,312 ft., drilling 3,566 ft.

Bell Township: Dome Gas 2 J. F. Wolford, 3,885 ft.

Peoples 1 F. D. Hines, 2,400 ft.

Dome Gas 2 D. D. Carnahan, rig.

Upper Burrell Township: Peoples 1 W. H. Wylie, 3,440 ft.

Southwest Texas Fields

(Continued from Page 57)

McMullen County

Crown Central 1 O. J. Dolan, James Kennedy Survey, drilling 3,725 ft.

Victoria County

J. Newton Rayzor 1 Evertson, B. Simms Sur., drilling shale 3,812 ft.

LAREDO DISTRICT

Duval County

Charamousca field: Magnolia 6 Duval County Ranch Co., 35 bbl., pumping, perf. casing 1,529-31 ft., T.D. 1,533 ft.

Hoffman field: Magnolia 22 Well, gas well, perf. casing 2,631-32 ft., T.D. 2,636 ft.

Seven Sisters field: Wellington 5-G Welder, 60 bbl., jetting, sand 2,532-34 ft., T.D.

Wildcat: Sun 1 A. G. Block, dry, T.D. 4,600 ft.

Jim Hogg County

Colorado field: Humble 10 King ranch, 168 bbl., ¾-in. choke, T.D. 2,974 ft.

Wildcat: Sun 1 McCampbell, dry, T.D. 5,604 ft.

Live Oak County

White Creek field: P. H. Korges, 242 bbl., ¼-in. choke, perf. casing 1,506½-14½ ft., T.D. 1,547½ ft.

Starr County

Kelsey field: Humble 1 Juarez, dry, T.D. 4,778 ft.

Webb County

Glen field: Interstate Minerals Co. 59 Lopez, 172 bbl., pumping, T.D. 2,174 ft.

Transwestern 9 Yeager-Stroman, 90 bbl., pumping, sand 2,167-81 ft., T.D.

Transwestern 10 Yeager-Stroman, 138 bbl., 8 hr., pumping, sand 2,180-94 ft., T.D.

Killam field: O. W. Killam 7 Garcia, 60 bbl., pumping, perf. casing 1,990-94 ft., T.D. 2,030 ft.

Oilton field: V. G. Schimmel 1 Laurel, dry, T.D. 2,498 ft.

Wildcat: W. C. McBride 1 Gordon Adami, dry, T.D. 1,221 ft.

SAN ANTONIO DISTRICT

Bexar County

Wildcat: E. H. Stumberg, dry, T.D. 2,302 ft.

Caldwell County

Bee Creek field: Ralph Ogden 9-A Miears, 404 bbl., 12 hr., pumping, chalk 2,073-2,153 ft., T.D.

Guadalupe County

Wildcat: Robert Newton 1 Vorpahl, dry, T.D. 1,003 ft.

Development of Shallow Zone Along Muenster Arch Gains

By R. MARNE SANFORD

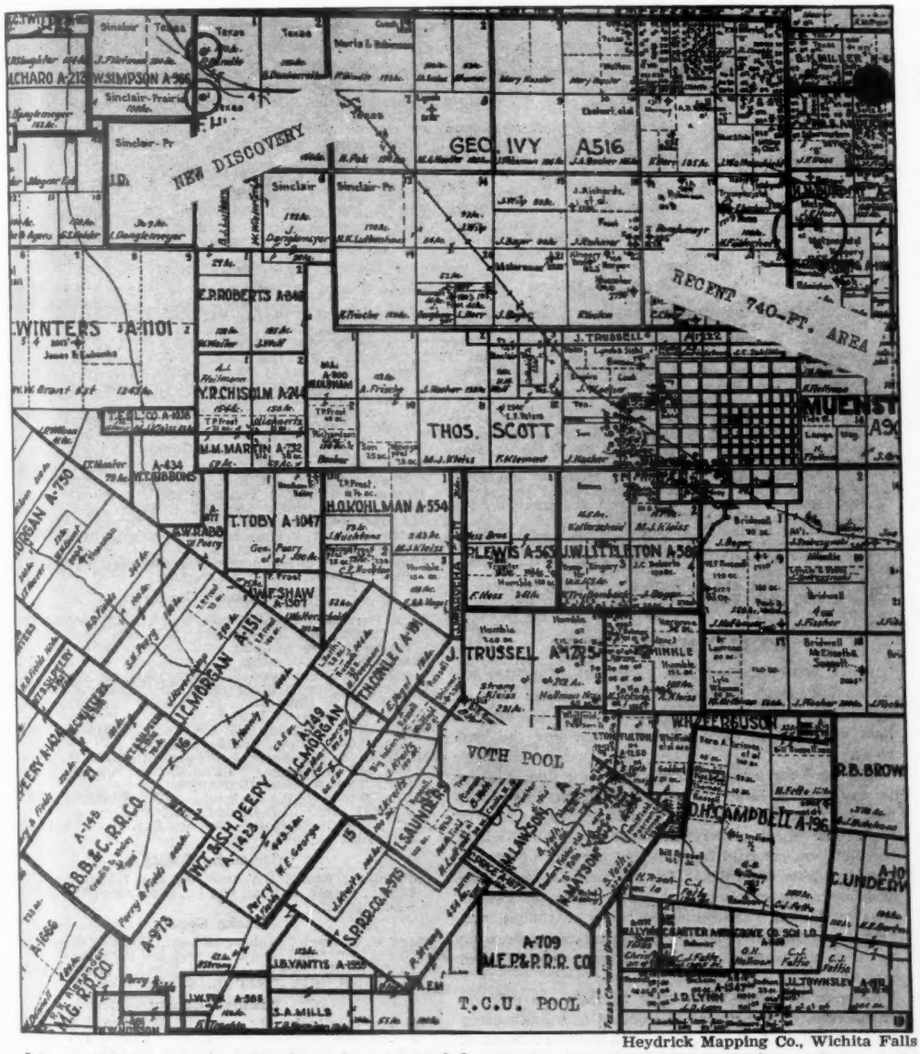
WICHITA FALLS, Tex., Apr. 7. — During the past few months the drilling pace has been steadily increasing throughout the Muenster area of Cooke County, including the T.C.U. field, the Voth field, and the old Muenster field itself. This drilling activity has been greatly augmented the past week or two by the discovery of a new relatively shallow field along the Muenster arch and just northwest of the town of Muenster. The field was opened 2 weeks ago by Texas 1 Bindle, Section 1, F. Hughes Survey, Abstract 439, about 4½ miles north of the town of Muenster.

During the past week the same company's 1 Endress, second well in the new area and about ½ mile south of the discovery, indicated a producer as oil was recovered. The second test recovered 693 ft. of oil in 3 minutes through a 5-in. opening from pay drilled from 1,903-11 ft., total depth. The discovery well was first thought capable of making a flowing well. However, it was completed for 254 bbl. daily from a lower Strawn sand from 1,885-96 ft. The second test is believed to be in the flowing-well class. It is ½ mile south of the strike and in the same survey. Both tests were drilled on leases due to expire in early April.

In the T.C.U. field, where production is obtained from a shallow Strawn sand at 1,100 ft., there are now some 34 producing wells and about five rigs running in the field. The area has been extended almost ¾ mile to the southeast from the original discovery well. Just north of the T.C.U. field is the Ellenburger lime Voth producing area. There are some 50 producing wells in this field, from both the 1,800-ft. Ellenburger lime and from a 1,600-ft. sand of lower Strawn age. In the large and now semidepleted Muenster field north of the town of Muenster several new spots have been opened to production, either from the old original 1,600-ft. pay level or from new and shallower sand lenses in the Strawn series. One new 700-ft. producing spot has been opened in the past few months and more drilling and exploratory work is forecast for the near future.

A test was preparing for official completion in the recently opened Harrold field of Wilbarger County at the close of the week which would open a new and the third pay level for the field. Originally discovered from the 2,900-ft. level, a test later found saturation at 3,170 ft. The new test, Kadane & Fidel 1 Cochrain, Section 2, M.K.&T. Survey, has pipe set at 3,263 ft. with a new lime showing oil from 3,268-75 ft. Meanwhile the 3,170-ft. producing level's discovery well is preparing for official completion. It is the same operator's 1 Schlaffke, Section 3, Block 14, H.&T.C. Survey. Pumping equipment is being installed and gage is expected the coming week.

Derrick has been erected for a new Wilbarger County wildcat test 3½ miles southwest of the Rock Cross-



Heydrick Mapping Co., Wichita Falls

A new 1,800-ft. producing field, shown here by circled wells, has been opened about 4 miles northwest of the old Muenster field. Just north of the town of Muenster a new shallow 740-ft. area is under development, while activity is still going at a rapid pace in the shallow 1,600-ft. and 1,800-ft. Voth field and the 1,100-ft. T.C.U. field, all in Cooke County

SUMMARY OF COMPLETIONS

North Texas

	No.	Bbl.	Footage
Oil: Antelope field	2	850	6,430
Clay field	2	65	2,382
Walnut Bend field	2	525	8,779
K.M.A. field (shallow)	3	66	3,910
Olney field	4	79	3,583
Young field	3	927	10,379
Other fields	8	2,583	21,290
Wildcats	2	950	8,240
Gas: Young field	1	*20	3,914
Dry: Olney field	3	.....	2,683
Other fields	6	.....	11,386
Wildcats	5	.....	26,955
Total	41	.....	109,931

West Central Texas

Oil: Fields	2	270	3,936
Wildcats	1	31	1,094
Gas: Fields	2	*10.6	6,088
Dry: Fields	4	.....	7,986
Wildcats	2	.....	1,003
Total	11	.....	20,107

*Million cu. ft.

ing field. It is to be H. F. Wilcox Oil & Gas Co. 1 W. T. Waggoner estate, a 5,000-ft. operation to be drilled with rotary. Location is in Section 43, Block 2. H.&T.C. Survey. The wildcat is on a relatively small block of 900 acres.

Show Logged in Clay County Wildcat

Gulf Oil Corp. has cemented casing on top of the Nocona lime in its 1 Scaling, Section 3, T. & N. O. Survey, 7 miles north of Bellevue and in the old 3,900-ft. Worsham field of eastern Clay County. The 1 Scaling found shows of oil in the lime from 5,596 to 5,617 ft. Only thin and broken sections of saturation were logged, but electrical survey was made of the hole and the 7-in. cemented at 5,600 ft. With a total depth of 5,625 ft., the plug will be drilled the coming week.

NORTH TEXAS COMPLETIONS

Archer County

Hull-Silk field: Fain-McGaha 2 Wilson C, dry at 4,790 ft.
Magnolia 6 Rutty B, 64 bbl. an hr., ¼-in. choke, est. 450 bbl. daily, 1,000 gal. acid, 4,559-4,603 ft.
Archer field: W. T. Hutchinson 1 McCrory, dry at 1,550 ft.
J. L. Webb 2 Montgomery, dry at 1,121 ft.
Bridwell Oil 5 Oil Investment Co., dry at 1,458 ft., old well drilled deeper.
Petroleum Producers 3 King, 132 bbl., 24 hr., 1,235-50 ft.
Griffin field: Stone 1, 1-A and 2 Griffin-Anderson, abandoned locations.

Clay County

Wildcat: Bridwell Oil 1 Meyers, Charleton Thompson Sur., Abst. 444, top Caddo 5,486 ft., Mississippian 5,997 ft., Ellenburger 6,038 ft., dry at 6,065 ft.
Clay field: Sussex Oil 3 McInnes, 40 bbl. daily, pumping, 1,238-40 ft.
Gorman & Norwood 3 Taylor, 25 bbl. daily, pumping, 1,123-27 and 1,132-42 ft.
Antelope field: Shell 7 Coburn, 112 bbl. in 8 hr., est. 200 bbl. daily, perf. casing 3,218-28 ft.
Shell 8 Coburn, 334 bbl. in 8 hr., est. 650 bbl. daily, perf. casing, 3,198-3,202 ft.

Cooke County

Walnut Bend field: Sinclair Prairie 2 Cox A, pumped

80 bbl. in 8 hr., est. 175 bbl. daily, perf. casing 4,708-32 ft.
Sinclair Prairie 19 McGeorge, 75 bbl. in 3 hr., est. 350 bbl. daily, perf. casing 4,037-47 ft.
Cooke field: Seitz-Comegys-Seitz 1 Mount B, top Ellenburger 1,833 ft., dry at 1,867 ft.
T.C.U. field: C. J. Bohner 2 Lynn, 40 bbl. daily, pumping, 1,114-19 ft.

Jack County

Grass Roots field: B. C. Gilmore 1 Hoefle, dry at 600 ft.
Bryson field: Three B Investment Co. 1 Holney A, 648 bbl. daily, ¾-in. choke, 3,091-3,108 ft.

Montague County

Wildcat: T. F. Hunter and Wilcox Oil & Gas 1 Barcus, Sec. 78, Kaufman C.S.L. Sur., Abst. 407, dry at 4,705 ft.
Bonita field: Sinclair Prairie 1 Admire, 192 bbl., 3 hr., open tubing, est. 950 bbl. daily, 5,424-29 ft.
Nocona field: Pure Oil 9 Maddox C, 78 bbl. daily, pumping, 30-qt. shot, 900-13 ft.

Throckmorton County

Wildcat: Humble 1 Allie McKnight, Sec. 2, Day Land & Cattle Co. Sur., Abst. 1,264, 645 bbl. in 12 hr., flowing through ½-in. choke, est. 800 bbl. daily, top Caddo lime 4,021 ft., pay 4,026-49 ft.

Wichita County

K.M.A. field: C. O. Davis 9 Jones, 6 bbl. daily, pumping, 616-22 ft.
Coleman & Coppack 3 Warren, 25 bbl. daily, pumping, 1,496-1,500 ft.
Wichita field: Akin, Dimock & Costley 4 and 5 Oates, abandoned locations.
Frances Ann Dickerson 16 fee, 10 bbl., pumping, daily, 144-50 ft., 486-95 ft., 814-29 ft. and 873-90 ft.

Wilbarger County

K.M.A. field: J. A. Woods & Sons 10 Womack, 10 bbl. in 4 hr., est. 35 bbl. daily, 1,778-88 ft.
Fargo field: Amerada 1 Sears, 62 bbl., 3 hr., ½-in. choke, est. 275 bbl. daily, 3,966-78 ft.
Wildcat: W. H. Gant 1 Mock, Sec. 23, Blk. 11, H.&T.C. Sur., dry at 6,112 ft.
S. S. Kouri & Omohundro 1 Kelly, Sec. 54, Blk. 13, H.&T.C. Sur., dry at 4,011 ft.

Wise County

Wildcat: Manahan Oil 1 Collier, J. M. Wade Sur., Abst. 868, dry at 6,062 ft.

Young County

Olney field: E. D. Willis 11 Stewart B, dry at 820 ft.
E. D. Willis 10 Stewart, 9 bbl. daily, pumping, 843-59 ft.
J. W. Sparks 9 Clark, 35 bbl. daily, pumping, 891-907 ft.
P. B. Worthington 3 Rogers, 26 bbl. daily, pumping, 873-900 ft.
Burma Pet. 2 Dunagan, 9½ bbl. daily, 909-17 ft.
Ard & Hanson 1 Belknap, dry at 725 ft.
P. B. Worthington 1 McClatchey, dry at 1,138 ft.
Wildcat discovery: R. P. Dorian 1 Grigsby, Sec. 416, T.E.&L. Sur., 52 bbl. in 3 hr., ¼-in. choke, 40-qt. shot, est. 150 bbl. daily, sand 3,974-86 ft., T.D. 4,191 ft., P.B. 3,987 ft.
Young field: Carey & Carey 3 Vaughn, 58 bbl. in 3 hr., ¼-in. choke, est. 300 bbl. daily, 2,473-80 ft.
Carey & Carey 2 Vaughn, 67 bbl. of distillate in 3 hr., ¼-in. choke, est. 20,000,000 cu. ft. of gas daily, 3,890-3,914 ft.
Tex-Tor Oil 4 Mosley, 327 bbl. in 24 hr., open tubing, 1,000 gal. acid, 3,742-3,825 ft.
Lupton & McLester 1 Jones, 168 bbl. in 8 hr., open tubing, natural, est. 300 bbl. daily, 4,061-74 ft.

NORTH TEXAS WILDCAT REPORT

Archer County

W. B. Hamilton 22 Cartwright, 660 ft. from W and S lines, James Webb Sur., Abst. 664, T.D. 5,211 ft., P.B. 5,164 ft., 60-qt. shot 5,149-61 ft., swabbing and cleaning out, est. 30 bbl. oil daily, S.D. 5,211 ft.
Walter Gant 1 Hunter, SE NW Sec. 7, Blk. 1, H.&T.C. Sur., top Ellenburger 5,370 ft., T.D. 5,391 ft., cemented back 5,120 ft., tested after 10-day shutin, made 40 bbl. oil first hr. and 19 bbl. second hr., then well went dead, preparing to quit 5,391 ft.
King Oil 1 Taylor, Lot 1, Sec. 13, A.T.N.C.L. Sur., top Ellenburger 4,963 ft., T.D. 5,055 ft., shot off pipe with 70-qt. shot from 4,927-44 ft., pumped 59 bbl. in, 16 hr. and pumped off, est. 20 to 30-bbl. well, waiting on test.
W. B. Hamilton 1 C. E. Graham, C SE part of Gibenrath Sur., Abst. 136, 2,000-ft. test, S.D. 1,975 ft., prepare to drill deeper.
Magnolia 1 Hayton, SE SE SE Sec. 2415, T.E.&L. Sur., 5,400-ft. test, top Caddo 4,660 ft., Marble Falls 4,765 ft., top Mississippian 5,210 ft., drilling 5,335 ft.

Baylor County

Rogers & Lanfair 1 Howe, J. Howe Sur., Abst. 572, show oil 1,445-52 ft., S.D. 3,115 ft., T.D., may drill deeper.
Baldwin & Reed 1 Robertson, 3,600 ft. from N and 630 ft. from E lines Robertson C.S.L. Sur., Abst. 280, drilling 3,035 ft. (corrected).
Amerada 1 Upshur C.S.L., 6,175 ft. from N and 11,250 ft. from E lines, Lot 58, Upshur C.S.L. Sur., Abst. 557, 10-in. 174 ft., drilling 2,640 ft.

Clay County

Gulf 1 C. W. Scaling, NW NW Sec. 31, T.&N.O. Sur., Abst. 685, 6,000-ft. test, show oil 5,596-5,617 ft., cemented casing to test.
L. T. Burns 1 Southerland, NE cor. of 100 acres of Sec. 63, J. H. Belcher Sur., 5,500-ft. test, top Caddo 5,322 ft., T.D. 5,386 ft., P.B. 4,490 ft., to test.
L. W. Stanford 1-A Edrington, 8,689 ft. from S and 150 ft. from E lines of F. W. Grassmyer Sur., Abst. 694, 1,200-ft. test, S.D. 700 ft., repair.
George Graham 1 Hansard, 1,736 ft. from N and 914 ft. from W lines of lease in Thornberry subd., 1,250-ft. test, show oil 400-22 ft., installing pump to complete, T.D. 1,144 ft., cleaning out bridge.
L. T. Burns 1 Fred Wines, 593 ft. from N and 476 ft. from E lines of Sec. 1, Halsell subd. 1, 5,500-ft. test, moving in materials.
George Graham 2 Hansard, 1,736 ft. from NW and 614 ft. from SW lines, Sec. 8, Thornberry subd., 300 ft. SW of No. 1 well, 1,150-ft. test, 7-in. at 1,122 ft., T.D. 1,135 ft., show oil, drilled plug, waiting on test.
Shell 1 Coleman, Sec. 24, Calhoun C.S.L. Sur., show oil in Mississippian lime, top Simpson 6,455 ft., Ellenburger 6,727 ft., preparing test, T.D. 6,837 ft.
Bridwell Oil 2 Meyers, 3,350 ft. from W and 2,185 ft. from N lines, Thompson Sur., Abst. 444, first report, 6,000-ft. test.

Cooke County

Texas Co. 1 Bindel, 1,530 ft. from N and 330 ft. from W lines of Francis Hughes Sur., Abst. 439, 3,000-ft. test, show oil 1,885-96 ft., completed for 234 bbl. daily pumping.
Gill & Sitherspoon 5 Wilson, 1,950 ft. from W and 3,500 ft. from N lines, Ehen Reed Sur., Abst. 849, 1,100-ft. test, location.

Hood County

Aztec Oil 1 Gallagher, SW SE Robert Alway Sur., 3,000-ft. test, S.D. orders 2,200 ft.

Jack County

Continental 1 Robertson, M. J. Swan Sur., Abst. 1659, top Ordovician 5,380 ft., T.D. 5,577 ft., P.B. 5,514 ft., swabbing est. 50 bbl. oil per 7 hr. but will not flow, still testing, installing gas lift.
R. J. Conkling 1 M. Hoffle, A. James Sur., Abst. 318, 3 mi. S of Antelope, 3,500-ft. test, T.D. 3,128 ft., S.D. 3,165 ft., repairs.
K. N. Davis 1 Jones, NW cor. E½ Sec. 2555, T.E.&L. Sur., 1 mi. SE Perrin, 2,500-ft. test, moving in rig.
Harper-McClintock 1 Kinder, 1,400 ft. from E and 467 ft. from N lines, Sec. 2667, T.E.&L. Sur., 6⅝-in. casing 1,640 ft., drilling 2,005 ft.
O. J. Perrin 1 Brumbelow, 1,045 ft. from S and 720 ft. from E lines, H. C. Ayers Sur., Abst. 4, S.D. 3,505 ft. after electrical survey.
Reed & Croft 1 Richards, 467 ft. from W and 1,200 ft. from N lines of C. Gates Sur., Abst. 237, 3,500-ft. test, digging pits.
C. H. Peterson 1 Hoefle, SE cor. John W. Barrett Sur., Abst. 48, 500-ft. test, 8-in. at 228 ft., 7-in. at 325 ft., show oil 340-42 ft., 438-44 ft., T.D. 444 ft.
Adam Grafe 1 H. R. Bloodworth, 6,986 ft. from S and 3,244 ft. from N lines, William McDonald Sur., Abst. 380, 3,500-ft. test, moved in material and S.D.
P. B. Worthington (was R. S. Lake) 1 Simpson, 1,500 ft. from S and 1,000 ft. from W lines J. W. Abbey Sur., Abst. 11, old well drilled deeper, old T.D. 3,152 ft.

Montague County

Seitz, Comegys & Seltz 1 Ritchey, NE cor. S½ Sec. 60, Belcher subd., 6,200-ft. test, 10¾-in. 826 ft., drilling 3,570 ft.
Walter Gant 1 Will Laird, R. T. Millard Sur., Abst. 470, 7 mi. W of Sunset, T.D. 6,651 ft., P.B. to 6,596 ft., perf. casing 4,865-73 ft., best gage for 125 bbl., swabbing in 6 hr. after S.I. for 10 days, P.B. 6,590 ft., blew off head and swabbed 60 bbl. oil in 4 hrs., still swabbing.
Redman Brothers 1 Hardy, 225 ft. from N and E lines of 41-acre tract in Fielding Secrest Sur., Abst. 665, 2,500 ft. test, pipe free, prepare to drill deeper.
Benson & Benson 1 Seay, SE SE SE Sec. 31, Blk. 4, H.&T.C. Sur., 4,000-ft. test, 10-in. 500 ft., drilling 3,570 ft.
Sinclair Prairie 1 Clingingsmith, 467 ft. from S and W lines of Sec. 149, Jose Olabarri Sur., Abst. 579, 6,000-ft. test, 9⅝-in. at 749 ft., top Strawn 3,130 ft., drilling 4,544 ft.

Throckmorton County

Rathke Oil 1 Swagerty, 495 ft. from N and 746 ft. from E lines of SW Sec. 258, B.B.B.&C. Sur., 5,000-ft. cable-tool test, top Palo Pinto 2,830 ft., drilling 2,880 ft.

Wilbarger County

O. H. Hammer 1 A. V. Shelton, NW NW Sec. 16, Blk. 11, H.&T.C. Sur., 4,500-ft. test, drilling 377 ft.
W. B. Omohundro 1 Vaughn, 2,330 ft. from E and 330 ft. from N lines, S½ Sec. 29, Blk. 1-C, H.&T.C. Sur., 5,000-ft. test, drilling 1,898 ft.
Wilcox Oil & Gas 1 Waggoner, 330 ft. from S and E lines, SW Sec. 43, Blk. 2, H.&T.C. Sur., 5,000-ft. test, location.

Young County

Ben H. Rankin 1 Mary Logan, SW part Blk. 2, J. W. Doty Sur., 8 mi. NE Graham, 2 mi. W Nelson field, tested 1,000,000 cu. ft. gas from 4,288-95 ft., top Marble Falls 4,470 ft., S.D. 4,475 ft.
Frank Buttram 1 Holmes, 600 ft. from W and 1,960 ft. from S lines, J. M. McRodgers Sur., Abst. 1878, show gas 4,006-11 ft., T.D. 4,065 ft., treated 7,000 gal. acid, no results, P.B. 4,050 ft.
L. T. Burns 1 Larimore A, 500 ft. from N and W lines of E 200 acres of Sec. 150, T.E.&L. Sur., 5,200-ft. test, show oil 3,100-14 ft. and 3,262-79 ft., drilling 3,300 ft.
E. L. Orr 1 Laird, 150 ft. from S and 1,450 ft. from W lines, Sec. 1393, T.E.&L. Sur., 925-ft. test, location.

WEST CENTRAL TEXAS

FORT WORTH, Tex., Apr. 7.—Increased drilling for Coleman County's several gas fields, together with an upturned number of wildcat locations for the district, held attention in West Central Texas for the past week.

The need for a reserve gas supply for domestic use in the several large army camps in the district is pushing field development and wildcat explorations as well. The work centers in Coleman County where the Janellen gas field has supplied the city of Brownwood with its natural gas for the past 21 years. The ever-increasing enrollment at Camp Bowie at Brownwood and at a near-completed camp of similar proportions at Abilene just to the northwest, is drawing on the normal-time adequate reserve of Coleman County.

Coleman County.—Three new wildcats are starting in the county, all primarily projected to a gas-bearing zone. McMillan & Rominger 1 Wilkerson is a 2,800-ft. exploratory location staked 1,570 ft. from the north and 587 ft. from the west line of Section 3, Block 2, G.&H.H. Survey.

A. P. Heinze 1 Whittington is a 3,800-ft. location staked 467 ft. from the north and west lines of the SE Section 4, Block 2, T.&N.O. Survey. The third location for exploratory tests is G. C. Collier 1 Stafford, a 1,500-ft. test in the Alderata Survey 275.

Callahan County.—In Callahan County H. R. Clay and Fred Hyer have staked location for 1 Hennessey, a 1,800-ft. wildcat location 2,310 ft. from the south and west lines of Section 83, B.B.B.&C. Survey.

Mills County.—A new Mills County location, one first rumored several weeks ago, is C. D. Lane 1 Egger, a 3,500-ft. wildcat 2,078 ft. from the north and 450 ft. from the west lines of Section 4, William Haynes Survey.

Shallow Discovery

A shallow discovery was officially completed in Callahan County about 10 days ago. It is Ungren & Frazier 1 Rushing, located in Section 116, B.B.B.&C. Survey. The discovery well made 31 bbl. of oil and 16 bbl. of water, pumping, in 24 hours. Pay was from 1,084-94 ft., total depth.

WEST CENTRAL TEXAS COMPLETIONS

(24-hour gages)

Callahan County

Wildcat discovery: Ungren & Frazier 1 Rushing, 31 bbl. oil and 16 bbl. water, pumping, 1,084-94 ft., located in Sec. 116, B.B.B.&C. Sur.

Comanche County

Amity field: St. John and Choate 11 Smith, 12 bbl. daily, pumping, 20-qt. shot, 621-35 ft.

Eastland County

McElreath field: Hickok Prod. 1 Gray & Luse, 4,000,000 cu. ft. gas, 3,688-93 ft.
Semiwildcat: Danciger 1 Abbott, Sec. 104, Blk. 3, H.& T.C. Sur., 258 bbl., 525-qt. shot, 2,975-3,301 ft.

Erath County

Wildcat: E. H. Young 1 Mills, J. Harvey Sur., abandoned hole at 212 ft.

Jones County

Triplett field: T. D. Humphries 2 Rust, dry at 2,580 ft.
Noodle field: Humble 2 Horton, dry at 2,999 ft.

Shackelford County

Wildcat: Cecil Young 2 Simpson, W½ Sec. 13, B.A.L. Sur., dry at 791 ft.
Sedwick field: Roark 1 Snyder, dry at 754 ft.
Wildcat: Roark 1 Elliott, Sec. 12, L.A.L. Sur., dry at 890 ft.
Hamby field: Charter Oil & Gas 2 Powers, dry at 1,653 ft.

Taylor County

South View field: Tal-Vez Oil 1 McGahee, 6,640,000 cu ft. gas, spray of oil, 6,000 gal. acid, 2,369-95 ft.

WEST CENTRAL TEXAS WILDCAT REPORT

Brown County

C. G. Goss 1 Crownover, 467 ft. from S and E lines Sec. 26, B.B.B.&C. Sur., 3,000-ft. test, drilling 457 ft.
R. Richmond 1 Petros, SW SW Sec. 7, H.T.&B. Sur., 1,200-ft. test, S.D. 800 ft.
Manning, Richburg & Johnson 2 Charter, SE NW Sec. 19, Blk. 2, B.B.B.&C. Sur., 600-ft. test, location.
Central Tex. Gas 1 E. S. Smith, NE cor. of W 199 acres of S 291 acres of Wm. Guyman Sur. 86, 2,000-ft. test, drilling 975 ft.
H. P. Evans 1 Starkey, SE SE Sec. 3, H. C. Walker Sur., 1,200-ft. test, S.D. 150 ft.

Callahan County

W. D. Austin 1 I. N. Jackson, 150 ft. from N and W lines, Sec. 2, C.&M. Sur., cleaning out 982 ft.
Reeves & Sorrell 1 Young, 1,980 ft. from N and 660 ft. from E lines, Sec. 37, B.B.B.&C. Sur., H.F.W. 1,975-2,000 ft., 6⅝-in. 2,000 ft., S.D.
Yates & York 1 Huestis, NE NW Sec. 3198, T.E.&L. Sur., 600-ft. test, location
Clay & Hyer 1 Hennessy, NE SW Sec. 83, B.B.B.&C. Sur., 1,800-ft. test, first report.

Coleman County

L. J. Derrick 1 J. W. Vance, 330 ft. NW of old Texas 1 Vance, also in Sec. 101, E.T. Sur., 3,000-ft. contract, prepare to spud.
West Coast Prod. Corp. 1 Morris, SW cor. of NE 160 acres, J. Greenwood Sur. 304, cleaning out 1,858 ft.
Cooper Brothers 1 McClure, 1,100 ft. from S and 2,400 ft. from W lines of T. R. Frizzell Sur. 711, 2,800-ft. test, S.D. repairs 920 ft.
States Oil 1 Hudson, NW SW Sec. 22, Blk. 2, T.&N.O. Sur., 3,600-ft. test, drilling 2,528 ft.
McMillan & Rominger 1 Wilkerson, 1,570 ft. from N and 587 ft. from W lines Sec. 3, Blk. 2, G.H.&H. Sur., 2,800-ft. test, first report.
A. P. Heinze 1 Whittington, NW SE Sec. 4, Blk. 2, T.&N.O. Sur., 3,800-ft. test, first report.
G. C. Collier 1 Stafford, Alderata Sur. No. 275, 1,500-ft. test, first report.

Comanche County

Campbell 1 Stark, SW part of Asa Hoxey Sur., S.D. 145 ft., repair, will set 6⅝-in., pipe collapsed, H.F.W., S.D. 732 ft.

Concho County

Floyd C. Dodson 1 Robert Wilson, Thomas Green Sur., 10 mi. SW Eden, show oil and gas 3,792-95 ft., 3,819-20 ft., at 3,828-29 ft. showed 1 bailer water per hr., correction, T.D. 3,829 ft., S.D.O.

Eastland County

Douglas Tomlinson, Jr., et al 1 Bennett, NE NE NE Sec. 6, Blk. 2, H.&T.C. Sur., 900-ft. test, T.D. 896 ft., est. 10 to 15 bbl. daily, waiting on test, 896 ft.
Arnold, Kirk et al 1 J. W. Adams, Jr., 2,708 ft. from N and 761 ft. from E lines David McFadden Sur., 2,600-ft. test, T.D. 1,150 ft., reaming 8¼-in. casing at 950 ft.

(Continued on Page 72)

Heavy-Crude Demand Starts Development of Mount Poso

By L. P. STOCKMAN

LOS ANGELES, Calif., Apr. 7.—California has passed through the past winter months in fairly good shape and under ordinary conditions would go into the summer season, during which peak consumption of gasoline would be reached, with an expectation that gasoline stocks would be greatly decreased. The present voluntary curtailment program in effect in California was originally started to stabilize conditions by decreasing stocks to a large extent and then accumulate stocks during the period of lower demand. This ideal condition existed for several years with more or less success but the conservation committee has been unable to carry out this program to the fullest extent.

In the meantime, and for the past 2 years, there has been a great disparity between production of light refinable crude oil and heavy crude oil of the fuel type. During this period production of light crude has jumped by leaps and bounds while production of heavy crude oil remained relatively unchanged or declined. This situation is particularly interesting in view of the fact that during the past 2 years stocks of heavy crude oil have been reduced, indicating a demand in excess of production. It is also interesting to note that prices paid for heavy crude oil have been severely reduced and only recently marketers have restored about 5 cents per barrel of the original cut.

The Pacific Coast territory is now headed for the peak-consumption period during the coming summer months. The point of lowest demand has been passed and consumption of gasoline will gradually increase until the peak is reached in July, August, and September, after which the demand will gradually taper off until next January. L. P. St. Clair, administrator for the conservation committee, is very much concerned over the outlook for the remainder of the year especially as to stocks of gasoline. He is of the opinion that if marketers continue running light refining crude oil to stills in sufficient amounts to meet the requirement for fuel oil, refinery residuum, stocks of gasoline will show a substantial increase.

He has been advocating for a long time the use of heavy unrefinable crude oil to meet the demand for fuel oil and reduce production of light refinable crude oil. It is needless to say that this condition is very sound and could be followed to advantage. Unfortunately marketers have reduced fuel-oil prices below economic levels, in the face of an increasing demand, and thus prices quoted for heavy crude oil have been depressed. There has been a very pronounced change in the production of crude oil in California during the past several years. This is reflected not only in the large potential established but has resulted in a great disparity between production of light and heavy crude oil. The condition of producers of heavy crude oil and the price paid for this grade of oil in the face of an increasing demand is inviting trouble which may not be long coming. Certainly there is no justification for the present price, except that which has arisen from a marketing battle for fuel-oil contracts and certainly the present practice cannot be defended as far as waste is concerned.

Every marketer vociferously denies there is any waste in California and while this might be true as far as physical waste is concerned it is most certainly not true as regards producing the type of crude oil that is needed. General Johnson warned operators present at the annual dinner meeting of the California Oil and Gas Association this week not to wait until the industry is drafted before undertaking cooperative work and to advise the proper authorities that the California oil industry is united and willing to meet any emergency. There can be no unanimity of opinion as long as producers of heavy crude oil are penalized by a price that precludes a living wage and profit because some marketer probably stepped out of line and started cutting fuel-oil prices for a temporary period.

SUMMARY OF COMPLETIONS

	No.	Bbl.	Footage
Oil wells: San Joaquin Valley	6	8,258	50,965
Coastal district	3	3,993	18,402
Los Angeles Basin	6	1,259	26,350
Total	15	13,510	95,717
Recompletions:			
San Joaquin Valley	3	325	.....
Los Angeles Basin	4	915	.....
Total	22	14,750	.....

AVERAGE DAILY PRODUCTION

LEADING CALIFORNIA FIELDS

	Apr. 5	Mar. 29
Wilmington	83,400	82,550
Midway-Sunset	45,625	39,885
Long Beach	40,975	41,575
Kettleman North dome	37,425	38,875
Ventura Avenue	34,525	33,370
Coalinga	31,550	37,150
Huntington Beach	29,350	28,180
Santa Fe Springs	24,125	23,375
Dominguez	22,760	21,625
Santa Maria Valley	17,250	19,775

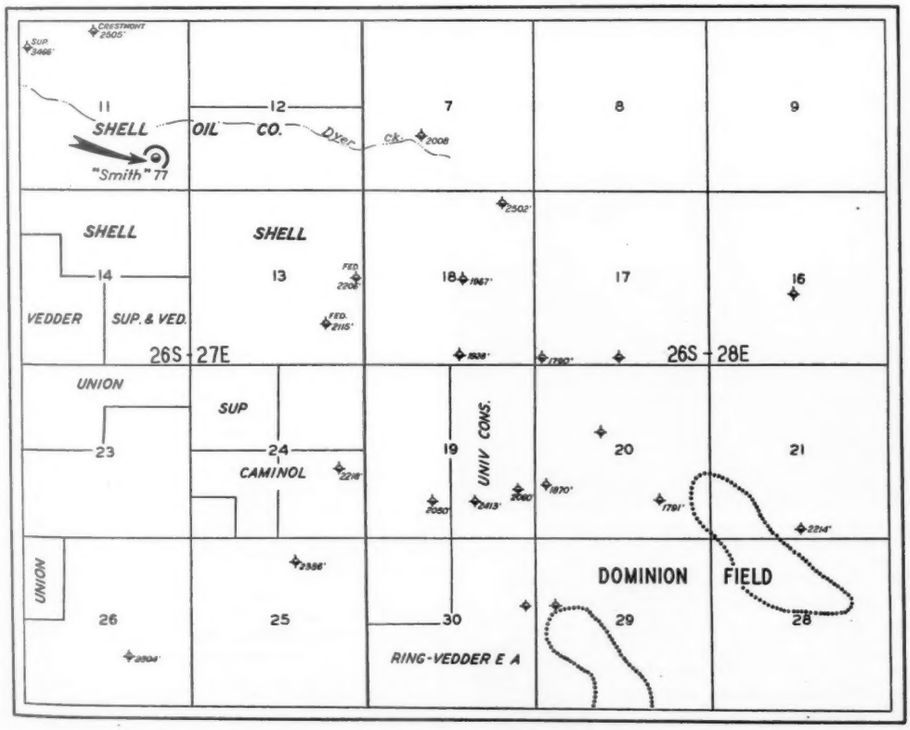
SAN JOAQUIN VALLEY

Shell Oil Co., Inc., recognizing the necessity of increasing production of heavy crude oil, has started a development program involving the Matthew, Security, and Vedder properties in the Mount Poso field of Kern County and has gone further by recently starting a wildcat in Dyer Creek northwest of the Mount Poso field. It is apparently not possible to greatly increase production of heavy crude oil in San Joaquin Valley fields and there will not be any large amount of reconditioning work as long as present prices continue and as long as the conservation committee is unable to agree on a plan to stimulate or permit operators to increase production without violating the curtailment program. Additional wells at Mount Poso and Round Mountain which produce heavy crude oil will alleviate conditions to some extent but there are not very many undrilled locations available for work. The Union Avenue field, discovered a short time ago by Hancock Oil Co., may become a factor of some consequence by increased production of heavy crude oil but this remains to be seen as the second well drilled by Hancock proved to be a dud. Richfield Oil Corp. holds protective acreage at Union Avenue and may later undertake development.

GAS FIELDS.—Amerada Petroleum Corp. has spudded 1 Wilcox on Brannan Island about 1 mile southeast of the present productive limits of the Rio Vista field and this well, which is being drilled in search of commercial-gas production in the Cretaceous, should reach the critical depth in another 2 weeks. This wildcat is located in 31-4n-3e, in Sacramento County. In the Vernalis gas field of San Joaquin County, Standard Oil Co. has been delayed by rain but should begin making hole in 2 Blewett Comm. shortly.

CANAL AND TEN SECTION FIELDS.—The Canal field of Kern County for the first time since its discovery is devoid of drilling and will probably remain inactive for some time inasmuch as the field is just about all drilled up. There is a slight possibility that Shell and Ohio which control all of the productive acreage in the Canal field may undertake additional drilling on the basis of one well to each 10 acres in place of the present program which is based on one well to 20 acres. Shell recently deviated from the one-well-to-20-acre program in the Ten Section field but it has not yet been determined whether the company will do any great amount of drilling on this spacing program.

Shell Oil Co., Inc., has been using slim-hole drilling to advantage in the Ten Section field and would probably experience the same success in the Canal field



Shell Oil Co., Inc., has started a wildcat on the Smith property, indicated by arrow, near Dyer Creek northwest of the Dominion and Mount Poso fields in Kern County, California. Numerous dry holes have been drilled in the intervening area. Shell expects to go about 3,000 ft. to reach the Vedder zone

where the formations are similar and susceptible of the same kind of work. The use of slim-hole drilling has several outstanding advantages inasmuch as it reduces drilling costs and leaves conventionally drilled wells available for deepening to the Rio Bravo and Vedder zones at a later date if these zones are found productive. No Rio Bravo or Vedder zone tests have yet been drilled in Canal or Ten Section and while it is not known whether they will be found productive every indication points to the probability that a normal section should be found.

SAN JOAQUIN VALLEY COMPLETIONS

Coalinga Northeast Field

Pure 2 Schwinn 30-19s-16e
Flowed 206 bbl., 27.5-gravity, 0.1 per cent cut, 72,000 cu. ft. gas, 22/64-in. bean. Pressures 50/250 lb. Elev. 692 ft. T.D. 8,323 ft. 7-in. water string 8,225 ft. 4½-in. casing 8,323 ft. Gun perf. 8,271-8,318 ft. 8,301 ft. 2-in. tubing with packer 7,415 ft. Recompleted after hole redrilled and deepened from 8,300-ft. Green sand 7,753 ft. Gatchell oil sand 8,277-8,319 ft. Fresno County.

Coalinga Southeast Field

Standard 24-17-F fee 17-20s-16e
Flowed 599 bbl., 28.9-gravity, 1.7 per cent cut, 360,000 cu. ft. gas, 56/64-in. bean. Pressures 150/450 lb. Elev. 739 ft. T.D. 8,100 ft. 7-in. water string 8,009 ft. 120 ft. 4¾-in. liner 8,100 ft. Perf. 8,010-8,100 ft. 8,065 ft. 2½-in. tubing. Completed in Gatchell oil sand of Eocene age. Kreyenhagen 6,715 ft., green sand 7,864 ft. Bottomed in oil sand. 48 days' drilling time. Fresno County.

Coles Levee Field

Union 72-11 Kern County Land 11-31s-25e
Flowed 491 bbl., 35.2-gravity, 1 per cent cut, 473,000 cu. ft. gas. 18/64-in. bean. Pressures 900/1,500 lb. Elev. 309 ft. T.D. 3,956 ft., P.B. 9,877 ft. 5½-in. water string 9,545 ft. 345 ft. 4-in. liner 9,871 ft. Perf. 9,571-9,871 ft. 9,832 ft. 2½-in. tubing. Completed in Stevens oil sand of Miocene age. 46 days' drilling time. Kern County.

Edison Field

Monterey Expl. Co. 15 Shell-Duff 15-30s-29e
Pumped 104 bbl., 15.1-gravity, 5 per cent cut. Elev. 629 ft. T.D. 3,520 ft., P.B. 3,320 ft. 10¾-in. water string 1,655 ft. 95 ft. 8⅝-in. liner 1,731 ft. 200-mesh perf. 1,651-1,731 ft. 2,757 ft. 2½-in. tubing. Completed in Chanac formation of lower Pliocene age. Kern County.

Greeley Field

Standard 12-13 Kern County Land 7-29s-26e
Flowed 3,367 bbl., 34.1-gravity, 0.3 per cent cut, 2,825,000 cu. ft. gas. 30/64-in. bean. Pressures 1,265/1,300 lb. Elev. 341 ft. T.D. 11,510 ft. 7-in. water string 11,285 ft. 258 ft. 5-in. liner 11,502 ft. Perf. 11,288-11,502 ft. 11,488 ft. 2½-in. tubing. Completed in Rio Bravo zone 11,285 ft. and Vedder zone 11,314-11,510 ft. 79 days' drilling time. Kern County.

Midway-Sunset Field

Robert Foster 4 Perris 15-32s-23e
Pumped 15 bbl., 22.1-gravity, 3 per cent cut. Elev. 1,104 ft. T.D. 2,675 ft. 6⅝-in. combination string 2,621 ft. Perf. 2,569-2,621 ft. 2,250 ft. 2½-in. tubing. Recompleted after drilling hole to 2,645 ft. Kern County.

Mount Poso Field

Shell 8 Matthew fee 4-27s-28e
Pumped 365 bbl., 15.5-gravity, 42 per cent cut. Elev. 1,098 ft. T.D. 1,780 ft. 8⅝-in. water string 1,670 ft. 130 ft. 6⅝-in. liner 1,780 ft. Perf. 1,680-1,730 ft. 1,710 ft. 2½-in. tubing. Completed in Vedder zone of Miocene age. 10 days' drilling time. Kern County.

Ten Section Field

Shell 4-29-A Kern County Land 29-30s-26e
Flowed 2,276 bbl., 33.8-gravity, 1.2 per cent cut, 2,060,000 cu. ft. gas. 128/64-in. bean. Pressures 225/725 lb. Elev. 329 ft. T.D. 8,210 ft. 4½-in. combination string 8,210 ft. Perf. 8,016-8,210 ft. 7,983 ft. 2½-in. tubing. Completed in Stevens oil sand of Miocene age. N point 7,494 ft., top oil sand 7,790 ft. 26 days' drilling time. Kern County.

Rio Bravo Field

Union 52-28 Crites 28-28s-25e
Flowed 1,160 bbl., 38.4-gravity, 0.2 per cent cut, 1,800,000 cu. ft. gas. 32/64-in. bean. Pressures 1,400/1,500 lb. Elev. 334 ft. T.D. 11,488 ft. 5½-in. water string 11,240 ft. 263 ft. 4-in. liner 11,482 ft. 120-mesh perf. 11,253-11,479 ft. 11,005 ft. 2½-in. tubing. Completed in Rio Bravo and Vedder zones of Miocene age. Kern County.

SAN JOAQUIN VALLEY OUTPOSTS

Coles Levee Field

Standard 20-8 Kern County Land 5-31s-25e
T.D. 9,660 ft. in gray sand. P.B. 9,480 ft. Shooting with nitro. Have used 932 qt. to date. Elev. 430 ft. Kern County.

Elk Hills Field

Standard 42-31-S 31-30s-24e
Drilling and coring in sand and shale 7,550 ft. Elev. 1,122 ft. Kern County.
Standard 44-29-S 29-30s-24e
T.D. 3,900 ft., P.B. 3,230 ft. Making pumping test. Elev. 866 ft. Kern County.
Standard 27-19-S 19-30s-24e
Drilling in sand and shale 3,198 ft. Elev. 808 ft. Kern County.

Kettleman North Dome Field

Standard 1-1-U fee 1-23s-16e
Drilling in gray sand 11,660 ft. Formation test with packer 10,762 ft., light blow gas with water. Elev. 693 ft. Kings County.

Midway-Sunset Field

No. Amer. Oil Consd. 1-28 W. P. 28-32s-23e
Drilling 6,581 ft. in very hard shale with streaks of impervious sand. Elev. 1,560 ft. Kern County.

SAN JOAQUIN VALLEY WILDCATS

Cantua Creek District

Texas 27-13 Southern Pacific 13-17s-15e
T.D. 9,673 ft., P.B. 9,412 ft. Recemented liner 9,306 ft. account wet. Formation test of oil sand 9,432-9,506 ft. Fair blow gas. Recovered 15 stands gas-cut mud, 3 stands fresh water. Ground elev. 349 ft. Fresno County.

Buena Vista Hills District

Honolulu 25-P fee 10-32s-24e
Drilling 13,020 ft. in shale with streaks of hard sand. Objective is Rio Bravo and Vedder zones. Elev. 916 ft. Kern County.

Buttonwillow District

Texas 47-15 Southern Pacific 15-29s-24e
T.D. 8,122 ft. in sand and shale. Fish drill collar and bit. Elev. 287 ft. Kern County.

Bellevue District

Ohio Oil Co. 1-G Kern County Land 36-29s-26e
Rigging up. Location 2,310 ft. S, 1,640 ft. E from NW cor. 36-29s-26e, Kern County.
Union 31-3 Kern County Land 3-30s-26e
Drilling 8,998 ft. in sand and shale. Stevens oil zone absent. Kern County.

Jasmine District

A. J. Borget 1 Kern 16-25s-27e
Drilling in shale 1,405 ft. Elev. 632 ft. Kern County.

La Fayette District

La Fayette Oil Co. 1 Morris 28-1n-2w
Rigging up rotary drilling equipment. Located in Contra Costa County.

Lost Hills District

Associated 46-16 fee 16-27s-21e
Road built. Location 1,650 ft. N, 2,310 ft. E from SW cor. 16-27s-21e, Kern County.

Maricopa District

Bankline Oil Co. 24-24 Sunset 24-11n-23e
Drilling and coring in sand and shale 3,132 ft. P.B. 2,030 ft. to redrill. Elev. 970 ft. Kern County.

Dyer Creek District

Shell 77-11 Smith 11-26s-27e
Drilling 1,864 ft. in sandy shale. Located 5 mi. NW of Mount Poso field. Expect production in Vedder zone around 3,000 ft. Kern County.

Rio Vista District

Amerada 1 Wilcox 31-4n-3e
Drilling in sand and shale 980 ft. 9⅝-in. surface pipe cemented 616 ft. Sacramento County.

Shafter District

Continental 2-G Kern County Land 35-27s-24e
Drilling in sandy shale 11,349 ft. Redrilling 10,250 ft. Two fish in hole. Elev. 986 ft. Kern County.

Tejon District

Continental 1-9 Tejon 28-11n-19e
Rig built. Drilling equipment being placed on ground. Kern County.

Vernalis District

Standard 2 Blewett Comm. 28-11n-19e
Rigged up. Elev. 62 ft. San Joaquin County.

LOS ANGELES BASIN

Operators in the Athens-Rosecrans field expect to ascertain the possibility of developing commercial production north and northwest of the north end of the field within the next few days as Southern California Petroleum Co. is scheduled to make a production test of 1 Howard Park townsite at 122 and Vermont Avenue. This well, which is bottomed at 8,346 ft., plus or minus, may determine future drilling in the immediate area. If it comes in as a large flowing well it will greatly stimulate drilling operations on adjacent acreage but on the other hand if it only shows relatively small production it will have a tendency to retard drilling. The well to date has not shown any great amount of pressure and this would seem to indicate the possibility of a relatively small pumping well. Bottom of the hole contains some gray sand and thus the future status of this area will only be determined from an actual production test. Drilling operations throughout the Rosecrans field have been reduced to the point where there are only five strings of tools in operation.

INGLEWOOD.—There was a substantial change in the outlook for immediate increased drilling in the Inglewood field of Los Angeles County during the past week or 10 days and it now looks as though operators will retard development work as long as possible by refraining from work until called for by lease requirements. This means that it may be another 30 days before all operators begin drilling. During the past week R. R. Bush Oil Co. staked location for 1 Smith along the southern end of the property and material is scheduled to be placed on the ground within the next few days. This well together with the Merchants well will give Bush two drilling projects at Inglewood as soon as actual work gets under way. Jefferson Oil Co. is just about ready to spud in 1 Smith which is located on the 5-acre Smith property which was retained around the Smith residence when the Smith acreage was leased to Federal Oil Co. about a year or so ago. Texas Co. will begin rigging up rotary-drilling equipment on its Smith property within another 10 days as

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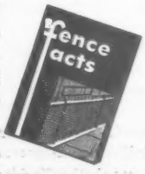

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the company has already started work on 7 Smith which will be carried down to the deep Sentous zone of Miocene age. In the southwestern end of the field, Standard Oil Co. is still working on 3-1 Los Angeles Investment and at present is coring below 10,000 ft.

WILMINGTON FIELD.—Operators in the Wilmington field of Los Angeles County closed a busy period this week during which time seven new wells were put on production. Three of these wells were newly drilled wells and four were former completions that had declined. This rejuvenation work is of interest because it indicates that gravel packing in one form or another has become a factor of importance in maintaining Ranger zone production. This horizon which produces a crude oil ranging from 13° to 17° in gravity also makes considerable sand. In order to keep this sand back behind the perforations operators have adopted the policy of gravel packing as soon as the opportunity arises to take a well off production for a cleanout job. The Terminal zone, both the upper and lower sections, is still in a semiflush stage in the eastern or Long Beach Harbor section of the field and consequently these wells for the most part are still flowing and do not require gravel packing.

LOS ANGELES BASIN COMPLETIONS

Rosecrans Field

St. Anthony Oil Co. 7 Gordon 19-3s-13w
Pumped 100 bbl., 32.1-gravity, 7 per cent cut. Elev. 68 ft. T.D. 8,077 ft., P.B. 8,058 ft. 7-in. water string 7,666 ft. 448 ft. 5½-in. liner 8,076 ft. Perf. 7,666-8,076 ft. 8,040 ft. 2½-in. tubing. Completed in O'Dea zone of Miocene age. 63 days' drilling time. Apparently established outer limits of production. Los Angeles County.

Huntington Beach Field

Signal O. & G. 23-A Bolsa 34-5s-13w
Flowed 313 bbl., 27.8-gravity, 1 per cent cut, 430,000 cu. ft. gas, 29/64-in. bean. Pressures 250/500 lb. Elev. 15 ft. T.D. 4,650 ft. 8⅝-in. water string 3,660 ft. 1,010 ft. 6⅝-in. liner 4,650 ft. Perf. 3,679-4,650 ft. 4,608 ft. 2½-in. tubing. Completed in Ashton zone. 32 days' drilling time. Orange County.

Signal O. & G. 2 Bolsa 34-5s-13w
Pumped 156 bbl., 27.2-gravity, 12 per cent cut. Elev. 14 ft. T.D. 3,982 ft. 8⅝-in. water string 3,743 ft. 251 ft. 6⅝-in. liner 3,982 ft. Perf. 3,745-3,982 ft. 3,950 ft. 2½-in. tubing. Completed in Bolsa zone. 15 days' drilling time. Orange County.

Wilmington Field

Atlantic Oil Co. 19 Harbor 32-4s-13w
Pumped 394 bbl., 15.1-gravity, 3 per cent cut. Elev. 27 ft. T.D. 3,540 ft. 8⅝-in. water string 2,608 ft. 972 ft. 5½-in. liner 3,540 ft. Perf. 2,610-3,050 ft., 3,250-3,540 ft. 3,440 ft. 2½-in. tubing. Completed in Ranger zone. 13 days' drilling time. Los Angeles County.

Macson Oil Co. 55-1-G 32-4s-13w
Pumped 50 bbl., 15.2-gravity, 20 per cent cut. Elev. 30 ft. T.D. 3,664 ft. 8⅝-in. water string 2,975 ft. 708 ft. 4¾-in. gravel-packed liner 3,663 ft. Perf. 2,990-3,235 ft., 3,340-3,663 ft. 3,641 ft. 2½-in. tubing including 690 ft. of 2-in. tubing. Completed in Ranger zone. Redrilled and deepened from original depth of 3,663 ft. Los Angeles County.

Royalty Service Corp. 5 Comm. 5-5s-13w
Pumped 443 bbl., 15.6-gravity, 4 per cent cut. Elev. 21 ft. T.D. 3,610 ft. 10¾-in. water string 2,618 ft. 993 ft. 5¾-in. gravel-packed liner 3,580 ft. Perf. 2,613-2,715 ft., 2,820-2,915 ft., 3,275-3,430 ft., 3,480-3,580 ft., 2,558 ft. 2½-in. tubing. Recompleted in Ranger zone after redrilling and deepening from 3,580 ft. Los Angeles County.

Selegna Pet. Corp. 7 Harbor 33-4s-13w
Pumped 62 bbl., 17.2-gravity, 4 per cent cut. Elev. 24 ft. T.D. 5,762 ft. 10¾-in. water string 3,020 ft. 396 ft. 5½-in. liner and 322 ft. of 7¼-in. liner 3,317 ft. 3,307 ft. 2½-in. tubing. Redrilled from 5,762 ft. to 3,345 ft. Recompleted in Ranger zone. Los Angeles County.

Union Pacific R. R. 176 fee 3-5s-13w
Flowed 259 bbl., 24.9-gravity, 0.8 per cent cut. 38/64-in. bean. Pressures 470/800 lb. Elev. 20 ft. T.D. 2,820 ft. 8⅝-in. water string 7,590 ft. 251 ft. 4¾-in. gravel-packed liner 2,815 ft. 60-mesh perf. 2,579-2,679 ft., 2,731-2,815 ft. 2,535 ft. 2½-in. tubing. Completed in Ranger zone. 25 days' drilling time. Los Angeles County.

Vulcan Oil Co. 469-2 Harbor 33-4s-13w
Pumped 37 bbl., 14.6-gravity, 3 per cent cut. Elev. 20 ft. T.D. 3,300 ft. 7⅝-in. water string 3,040 ft. 286 ft. 4¾-in. liner 3,300 ft. Perf. 3,040-3,300 ft. 3,160 ft. 2½-in. tubing. Completed in Ranger zone. 14 days' drilling time. Los Angeles County.

Wilmuth Pet. Co. 2 Gilmore 32-4s-13w
Pumped 360 bbl., 15.2-gravity, 9 per cent cut. Elev. 23 ft. T.D. 3,685 ft. 8⅝-in. water string 2,977 ft. 963 ft. 5¾-in. gravel-packed liner 3,675 ft. Perf. 3,235-3,675 ft. 3,546 ft. 2½-in. tubing. Recompleted in Ranger zone after hole redrilled to 3,675 ft. and gravel packed. Los Angeles County.

LOS ANGELES BASIN OUTPOSTS OR DEEP TESTS

Dominguez Field

Union 79 Callender 32-3s-13w
T.D. 12,720 ft. in basement schist. P.B. 12,464 ft. Cutting 5½-in. casing 7,651 ft. Los Angeles County.

Inglewood Field

Standard 3-1 L.A.I. 17-2s-14w
Drilling sand and shale 10,002 ft. Formation Miocene age. Los Angeles County.

R. R. Bush Oil Co. 1 Merchants 8-2s-14w
Derrick built and early spud scheduled. Los Angeles County.

Jefferson Oil Co. 1 Smith 8-2s-14w
Rigging up. Location not surveyed. Los Angeles County.

Texas Co. 1 Smith 8-2s-14w
Rigging up. Los Angeles County.

Rosecrans Field

Southern Calif. Pet. Corp. 1 Townsite 12-3s-14w
Casing cemented 8,346 ft. Preparing to test. T. P. Pike Drilling Co. doing actual drilling. Los Angeles County.

LOS ANGELES BASIN WILDCATS

Dominguez-Gardena District

Hiles Drilling Co. 1 Grant 29-3s-13w
T.D. 7,666 ft., P.B. 6,000 ft. Redrilling 6,198 ft. Elev. 39 ft. Los Angeles County.

Orange District

Associated 1 Olive-Orange 19-4s-9w
Drilling 3,164 ft. in sand and shale. Elev. 175 ft. Orange County.

COASTAL DISTRICT

The most important thing in the Coastal district is the impending increase in drilling operations. An extended rainy period has delayed drilling and most operators have decided to wait until late in April or May before starting work as many of the roads are newly constructed and will not permit the hauling of heavy equipment when wet. It is a little early to say just how many wildcats will be drilled in the Newhall-Castaic region during the remainder of the year but if another new field or two is found it will lead to extensive drilling. This area at present appears to be on the verge of an exploration program extending over a large territory. It took operators several months to work up their enthusiasm but as soon as R. E. Havenstrite completed a large flowing well operators went after leases in an aggressive manner. Standard Oil Co. and Shell entered the Newhall-Castaic region more than a year ago and prior to completion of Havenstrite's large well and were able to secure favorable leases on extensive blocks of land. Aztec Oil Co. after several months of delay has finally been able to get into its acreage on the Pico anticline and has already started drilling. This well will make a deep test of the Modelo unless production is secured in the upper part as was the case with Havenstrite's well on the Del Valle anticline. Every indication points to the probability that this entire area will be tested out by a number of independent operators during the coming year. It is logical to assume, therefore, that one or more new fields will be discovered.

COASTAL DISTRICT COMPLETIONS

Santa Maria Valley Field

Union 1 Fleisher 31-10n-33w
Pumped 1,195 bbl., 15.3-gravity, 2.1 per cent cut. Elev. 369 ft. T.D. 4,822 ft. 7-in. water string 4,411 ft. 558 ft. 2½-in. liner 4,820 ft. 7-in. casing perf. 4,290-4,411 ft. 2½-in. liner perf. with 180 mesh 4,463-4,820 ft. 73 days' drilling time. Delayed several weeks fishing pump. Santa Barbara County.

Union 2 Stinson 28-10n-34w
Pumped 68 bbl., 13.4-gravity, 35 per cent cut. Elev. 228 ft. T.D. 5,580 ft. 5¾-in. combination string 5,574 ft. 5¾-in. casing perf. 5,331-5,574 ft. and gun perf. 5,345-5,410 ft. 35 days' drilling time. Santa Barbara County.

Ventura Avenue Field

Shell 133 Taylor 29-3s-23w
Flowed 2,730 bbl., 31.3-gravity, 2.3 per cent cut, 2,650,000 cu. ft. gas. 64/64-in. bean. Pressures 250/450 lb. Elev. 261 ft. T.D. 8,000 ft. 7-in. water string 6,725 ft. 302 ft. 5½-in. liner 7,999 ft. Perf. 6,734-7,996 ft. 6,730 ft. 2½-in. tubing. Completed in 57 zone. 49 days' drilling time. Ventura County.

COASTAL DISTRICT WILDCATS

Castaic District

Barnsdall 1-17-A Honor Rancho 5-4n-16w
Drilling 1,198 ft. in sand and shale. Los Angeles County.

Morse-Mangold 1 McDermott 26-5n-17w
Drilling 398 ft. in surface sand. Los Angeles County.

Del Valle District

R. E. Havenstrite 1 Vasquez 21-4n-17w
Drilling in sandy shale 6,730 ft. First and second Miocene zones tested wet. Located southeast of discovery well. Elev. 1,102 ft. Los Angeles County.

Universal Consd. Oil Co. 1 Dennis 21-4n-17w
Rigged up. Elev. 1,006 ft. Los Angeles County.

Goleta District

Del Mar Oil Co. 1 Goleta 11-4n-28w
Rigged up. Santa Barbara County.

Loma Grande District

Loma Grande Oil Co. 1 Corey 23-24s-10e
Resumed work. Drilling 2,471 ft. in shale. Elev. 1,500 ft. Monterey County.

Oak Canyon District

Western Gulf 2 Lechler 31-5n-17w
Drilling 243 ft. in sand and shale. Contemplate deep test to lower Modelo. Elev. 1,489 ft. Los Angeles County.

Hathaway Co. 1 Ram 31-4n-17w
Drilling 1,164 ft. in sand and shale. Elev. 1,369 ft. Los Angeles County.

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Among the Drilling

NOAH DAVE, Fort Worth, Tex., has the contract for a 5,000-ft. wildcat to be drilled in southwestern Parker County, West Central Texas. It is to be J. L. Higginbotham, Dallas, 1 R. A. Wheeler, SE cor. of a 160-acre tract in the J. B. Brannan Survey. The test is about ¾ mile northeast of the old 1 Gilbert, recently junked by Higginbotham at a total depth of 4,840 ft. after encountering several promising shows of oil and gas.

GRACE & WOODS, Wichita Falls, Tex., has been awarded contracts for two wildcat tests to 4,500 ft. in Jack County, North Texas, both by the same operator. They will be drilled for Alma Oil Co., Oklahoma City, Okla., with the first to be 1 J. R. Ross estate, G. Taylor Survey, Abstract 844, 12 miles east of Jacksboro. The 1 J. W. Maxey will be drilled in Section 2, S.P. Survey, 5 miles southwest of Antelope in the northwestern part of the county.

GRADY VAUGHN, Dallas, Tex., is moving a heavy rig on the Phillips Petroleum Co. 1 Warnock, a wildcat located north of the Magnolia field, Columbia County, Arkansas, and is also beginning a wildcat under his name, about 3 miles east of the Schuler field, Union County.

RED IRON Drilling Co., Shreveport, La., is drilling for Gholson, Hodge & Culberson in the Tinsley field of Mississippi.

W. G. RAY Drilling Co., Shreveport, La., has a contract to drill two tests in the Tinsley field, Yazoo County, Mississippi, for Sinclair Wyoming Oil Co., successor to Exchange Oil Co.

BIG WEST Drilling Co., Dallas, Tex., is moving a rig on the British American Oil Producing Co. 1-A Houston estate, a wildcat in Sharkey County, Mississippi.

ROWAN Drilling Co. and Hebert & Smith have staked their planned wildcat in the Buttermilk Slough area of Matagorda County, Texas. Location is on a 40-acre tract in the Williams & Duncan Survey.

GEORGE ECHOLS, Houston, Tex., extended production in the newly opened St. Gabriel field, Iberville Parish, Louisiana, to the north, and was running casing in another test west of the discovery well. This field was opened by the contractor shortly after the first of the year, and development thus far indicates a field of major importance.

C. & I. Drilling Co., Houston, Tex., has reached a depth of 6,741 ft. in the company's 1 Evangeline Land & Mineral Co., a projected Wilcox sand test located on the old Pine Prairie prospect, Evangeline Parish, Louisiana.

JACK FRAZIER, Houston, Tex., drilling for Dick Schwab in the Cedar Bayou area, Chambers County, Texas, was preparing to core for the Frio sand in 1 R. D. Fisher, a wildcat located south of Cedar Bayou in the J. Steele Survey. Testing continues at the Dyersdale field on the contractor's 1 Bishkin & Kottwitz, located on the north side of the field, and the rig will be moved to the Mount Houston area, northwest of the field as soon as the well is completed.

LOFFLAND BROTHERS, Houston, Tex., was scheduled to move in to another location on the north side of the Thompson field, Fort Bend County, Texas, following the successful completion of H. N. Naylor 7-C Hampil. One operation is located in Victoria County for J. Newton Rayzor, while 1½ miles north of the new Willamar discovery in Willacy County, Pan American Production 1 Kent, continues to show for a producer while testing through perforated casing.

HENDERSON COQUAT, San Antonio, Tex., abandoned 1 Garcia, a Pettus sand test located in the Sejita field, Duval County, Texas, and the rig is expected to be moved to the Oakville field, Live Oak County, for a deep Wilcox test to be drilled on the south edge of the field. In Jim Wells County Arkansas Fuel Oil Co. 1 E. H. Brieger, a Frio-Vicksburg test west of Orange Grove, Jim Wells County, was spudded.

H. H. HOWELL, Corpus Christi, Tex., was expected to extend production on the southeast flank of the Agua Dulce field, Nueces County, Texas, a few hundred feet, as casing was cemented for completion in the contractor's 3 Schultz, after sand was cored at 6,505-20 ft.

ROWAN Drilling Co., Houston, Tex., will move a rotary to the Felicia area, Liberty County, Texas, for a joint wildcat test to be drilled with Hebert & Smith. The well is 1 B. H. Willis, a projected 8,500-ft. wildcat in Section 7, H.T.&B. Survey.

CLYDE TISSUE Drilling Co., Houston, Tex., received contract from the Kirby Petroleum Co. and John Mayo for 1 Donigan, a projected Wilcox test located on the flank of the Brookshire dome in Waller County, Texas.

WHITE EAGLE Drilling Co. has been awarded contract to drill a Woodbine sand test in Rains County, eastern Texas, for L. L. Prock, of Shreveport, La. The test will be 1 F. L. Grimes, NE cor. Sam Yandell Survey, on a 5,000-acre block. The company is at present drilling below 5,150 ft. in a wildcat for Marrs & Williams on the Thomas tract, Lewis Survey, Cherokee County. When the test is completed the rig will be moved north to Rains County.

CRESCENT Drilling Co. has announced a wildcat test for the A. A. Burns farm, C NE SW Section 13-18-17, Union County, Arkansas, which is considered one of the most important operations for the El Dorado section since the Schuler field was discovered several years ago. Location is about 7 miles southwest of El Dorado and 3 miles from production in the Schuler field.

HENSHAW BROTHERS of San Antonio, Tex., have contracted to drill a 6,000-ft. wildcat test in Lot 50, Survey 125, Jim Wells County, Texas, for Arkansas Fuel Oil Co.

ROWAN & HOPE, Inc., San Antonio, Tex., is preparing to drill a 6,000-ft. wildcat test on the Kynette farm in the La Trinidad grant, about 1½ miles southeast of Ben Bolt in Jim Wells County, Texas.

UNION Rotary Corp., with offices in the Hersee Building, Mount Pleasant, Mich., has been organized by Noah F. Andrews of Union Drilling & Producing Co. The new company will specialize in rotary drilling. Other officers of the company are Earl W. Andrews, secretary-treasurer; Frank Larimer and W. D. Donaldson, Jr., vice presidents; and Ollie Irvin, general manager.

E. M. SHIELDS, of Mount Pleasant, Mich., is building rig for Socony-Vacuum Oil Co. 1 Sneary in the Crystal field of Montcalm County, Michigan. In the Fremont field of Isabella the firm was awarded contract for drilling another Socony-Vacuum well, and in the Arcadia

Contractors

area of Gratiot County, Michigan, Shields is driving surface pipe for Chartiers Oil Co. 1 Grubaugh. In the Salem field of Allegan County, Michigan, the drilling firm is completing 3 Green and drilling below 1,380 ft. at 3 Weber for Socony-Vacuum Oil Co.

ROBERT W. ATHA, drilling contractor and producer of Mount Pleasant, Mich., is moving in materials for a new wildcat in Lincoln Township, Clare County, Michigan. The well will be drilled for Gulf Refining Co. and will be its 1-A Frackelton in C NE SE 20-18n-5w.

ART ARDREY, formerly assistant drilling superintendent for Robert W. Atha of Mount Pleasant, Mich., has been made general superintendent of that contracting firm. Mr. Ardrey has been with the Atha organization for the past 5 years and succeeds Ollie Irvin, who resigned to become general manager of Union Rotary Corp.

GLOBE Drilling Co., Michigan drilling firm, is moving in materials for the Bridger Basin Oil Corp. 1 Tripp in Casco Township, Allegan County, Michigan. Location is SE SW SW 35-1n-16w. Also in Casco Township, in the same section, Globe is nearing completion of Alfred R. Urion 1 Voss. Bottomed at 1,087 ft. in the Traverse, at last reports the well was being acidized.

TAYLOR Drilling Co. of Centralia, Ill., has spudded a wildcat for Ohio Oil Co. in Fremont County, Iowa. The test is the 1 J. Wisman in C NW NE 23-68n-41w.

PARKER Drilling Co., Tulsa, at last reports was drilling below surface pipe on Gulf Refining Co. 1 Aldrich Communitized in Lynn Township, Posey County, Indiana. The wildcat is located in SE NE NE 8-6s-14w, 1¾ miles southeast of the company's recently abandoned 1 Aldrich.

GARDEN Drilling Co., Wichita, Kans., has moved in rig for drilling its 1 Ross Elliott in Doniphan County, Kansas, located in SE SE SE 31-3s-20e.

BOWMAN Drilling Co. at last reports was testing its 1 Huber in the Albion pool of Edwards County, Illinois, following a 60-qt. shot at 3,028-51 ft. The well, located in NW 18-2s-11e, topped the Glen Dean at 2,515 ft., the Benoist at 2,925 ft., Ste. Genevieve at 3,066 ft. and at its total depth of 3,106 ft. was cased to test the Aux Vases.

GARETSON & KNISLEY, drilling contractors and operators of Casper, Wyo., at their 1 Bankers Life in the Falls City pool of Richardson County, Nebraska, swabbed at rate of 500 bbl. daily after the well was acidized. The Devonian lime was topped at 2,515 ft. with saturation found in the lower portion of a core taken at 2,517-21 ft. The well is located in SW SW 20-3n-16e.

TURNER Drilling Co., Mount Pleasant, Mich., is drilling below 890 ft. at the Turner Petroleum Co. 1 Weigert in the Freeman field of Clare County, Michigan. In the Winterfield area of Clare County, Turner was rigging up standard tools at the Cities Service Oil Co. 1 Phares, bottomed at 1,649 ft.

CLAY BROTHERS Drilling Co. last week spudded its 1 Henthorne in the Hugoton field of Grant County, Kansas, and at the week end was setting surface casing. Location is in SW SE 15-28-37w.

HERNDON Drilling Co., Tulsa, has completed its 1 Loula in the South Silica pool of Ellsworth County, Kansas. The well made 1,152 bbl. of oil per day on potential test after acidizing from a total depth of 3,281 ft. in the Arbuckle dolomite. Location of 1 Loula is SW SW 19-20-10w.

SHARON Drilling Co., Wichita, Kans., completed its 1 Herr estate in the Bowman pool of Rice County, Kansas, last week for a potential of 103 bbl. at a total depth of 3,294 ft. in the Arbuckle dolomite. The new completion is located in SW SW NE 21-19-10w.

AMERICAN Drilling Co., Saginaw, Mich., last week encountered a fishing job at its wildcat in Oceana County, Michigan, delaying its plans for deepening the indicated oil producer. The test, its 1 Skidmore in 9-16n-18w, Crystal Township, was producing about 35 bbl. of oil and as much water from the Traverse at 1,804-06 ft. Operators elected to deepen in an attempt to increase production.

RALPH PERRY is preparing to spud a new wildcat test in Dorr County, Michigan, for Perry & Beach of Saginaw, Mich. Location of the new test, 1 Irwin, is SW SE SE 4-4n-12w.

Daylight crew of Phillips Petroleum Co. 1 Silverman, Abell field, Pecos County, West Texas. It is the unanimous opinion of visitors who have seen this rig that it is one of the neatest, most efficient and best equipped yet seen in West Texas. The daylight crew consists of V. M. Spratt, Phillips field foreman; Leo Allen, diesel man; Art Wilson, driller; Paul Jeremiah, derrick man; Ralph Martin, backup man; Hubery Shults, pipe racker. Sitting, is Jerry Galligan, geological scout for Stanolind Oil & Gas Co.

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Belle Isle Salt Dome Yields Production From 11,000 Ft.

By F. L. SINGLETON

NEW ORLEANS, La., Apr. 7.—Exploration around the flanks of known salt-dome structures in the Louisiana Gulf Coast district which was started on an extensive scale in 1938-1939, added another salt structure to the productive list this week. Sun Oil Co. opened distillate production on the Belle Isle Salt dome, St. Mary Parish, with the completion of 1 Belle Isle Co. The well is bottomed in a sidetracked hole at 11,117 ft., and on a 24-hour gage, flowing through a ⅛-in. choke from perforated casing at 9,830-70 ft., the well made 16 bbl. of 47.5-gravity distillate. Working pressure was 3,750 lb., and the gas delivery was gaged at 1,540,000 cu. ft. per day.

SUMMARY OF COMPLETIONS

	No.	Bbl.	Footage
Oil wells: Fields	11	1,986	86,608
Dry holes: Fields	2		11,665
Wildcats	1		12,280
Total	14		110,553

Belle Isle is the second oldest known salt-dome structure in the district, having been discovered in 1896. Over 30 tests have been drilled on the structure. The structure is one of a group of salt structures known as the "Five Islands" which extend in an almost straight line extending southeastward from Iberia Parish through St. Mary Parish. These structures include Jefferson Island, Weeks Island, Avery Island and Cote Blanche. These first three were discovered in 1900, while Cote Blanche was discovered in 1921. Production was opened on the Jefferson Island dome in 1938, and exploration is now being carried on at Cote Blanche and Avery Island in St. Mary and Iberia parishes. The Sun producer at Belle Isle is located on the east flank in 6-18s-11e.

St. Gabriel Field Extended

The newly opened St. Gabriel field, Iberville Parish, continues to loom as an important discovery as production was being extended to the north and another test west of production was being prepared for a production test. Approximately 900 ft. north of the discovery well, George Echols 2-A Natalbany Lumber Co. was flowing at the estimated rate of 5 bbl. of fluid per hour while cleaning out through a ⅛-in. choke. Fifty per cent of the fluid was oil and the balance was wash water. Tubing pressure was 700 lb., and casing pressure 600 lb. Total depth is 7,831 ft., and completion was made by perforating casing at 7,780-88 ft. Approximately the same distance west, the operator's 1-A Gueymard is bottomed at 7,831 ft., and 7⅝-in. casing was being cemented following an electrical survey which showed the sand section at 7,767-90 ft.

Reese E. Carter 1 Craven, reported the previous week as a probable extension producer to the new Westwego area, Jefferson Parish, continues to test, and on a recent gage, the well flowed 198 bbl. per day through a 12/64-in. choke. Working pressure was 2,300 lb. The well is located about ¼ mile east of the discovery well, and completion was made by perforating casing in a new sand at 8,990-98 ft.

Amerada 1 Wilberts Sons Lumber & Shingle Co., a wildcat located on the Port Allen prospect, West Baton Rouge Parish, showed definite promise of opening a new field as the well flowed at the rate of 10 bbl. of fluid per hour through a $\frac{4}{64}$-in. choke while testing through perforated casing at 9,981-86 ft. Tubing pressure was 1,100 lb., and the well was flowing approximately 78,900 cu. ft. of gas. A large percentage of the fluid was salt water, and the well is being killed preparatory to retesting. The test was made in the lower member of seven sand sections which showed favorable indications on an electrical survey. Other sands which will no doubt be tested should the present test fail, were logged at intervals from 8,900-9,600 ft. The well is located about 12 miles east of University field in East Baton Rouge Parish in 26-7s-11e.

Third Wilcox Test in Rapides Parish

Location for another Wilcox test was announced for Rapides Parish. The well is Navarro Oil Co. 1 D. K. Cooper, 466 ft. from the north and east lines of the southwest corner of 54-4n-2w, about 5 miles west of Alexandria. This is the third Wilcox test to be announced for the parish within the past 2 weeks.

A new and shallower sand for the south flank of the Gueydan field, Vermilion Parish, is scheduled to be tested as Fohs Oil Co. cemented 7-in. casing at 4,822 ft. in 4 Mulvey Irrigation Co., after a drill-stem test and electrical survey showed favorable indication. Total depth is 4,855 ft. The well is located about 4,000 ft. northeast of the company's 1 Mulvey, which opened deep flank production on the dome at the close of last year, and about 700 ft. south of shallow sand production on top of the dome which has been developed by Pure Oil Co. On the extreme south flank, Union Sulphur Co. 1 Baker is halted at a total depth of 9,770 ft. after drilling deeper from 9,700 ft. where a protection string of 7-in. casing was recently cemented.

With the 8,200-ft. Frio sand already cored, Stanolind 1 R. E. Gillson, a north extension test to the Iowa field, Calcasieu-Jefferson Davis parishes, is drilling below 8,800 ft. in search of deeper sand section. Several exploratory tests recently drilled have tested gas and distillate in a lower sand below 8,700 ft., but none have been successfully completed.

LOUISIANA GULF COAST COMPLETIONS

Acadia Parish

North Crowley field: Humble 1 Link, dry, T.D. 9,820 ft.

Ascension Parish

Darrow field: Humble 36 Community, 143 bbl., 9/64-in. choke, perf. casing 4,553-59 ft., T.D. 4,750 ft.

Calcasieu Parish

Sulphur field: Union Sulphur 876 fee, 214 bbl., 22/64-in. choke, perf. casing 5,528-50 ft., T.D. 6,127 ft.

Cameron Parish

Chalkley field: Shell 1-B Lacassine, 230 bbl., 9/64-in. choke, plus 47 bbl. salt water, sand 10,095-10,121 ft., T.D. 10,129 ft.

Evangeline Parish

Villa Platte field: Continental 8 W. L. Tate, 147 bbl., 7/32-in. choke, perf. casing 9,936-71 ft., T.D. 10,171 ft.

Iberville Parish

Bayou Blue field: Superior of California 10 Schwing, 170 bbl., 9/64-in. choke, perf. casing 5,509-16 ft., T.D. 5,760 ft.

La Fourche Parish

Chacahoula field: Sun 3 Cypress Co., 340 bbl., 9/64-in. choke, perf. casing 7,800-40 ft., T.D. 8,283 ft.
Golden Meadow field: Brown-Wood 8 State, 107 bbl., 10/64-in. choke, perf. casing 5,430-45 ft., T.D. 5,510 ft.

Plaquemines Parish

Grand Bay field: Gulf 12-A Grand Prairie, 132 bbl., 7/32-in. choke, sand 8,711-45 ft., T.D. 8,745 ft.
Quarantine Bay field: Gulf 5-A Plaquemines, 292 bbl., 9/64-in. choke, perf. casing 8,590-8,610 ft., T.D. 9,503 ft.
Wildcat: Phillips 1 State-Bastian Bay, dry, T.D. 12,280 ft.

St. Martin Parish

Section 28 field: Superior of California 1-B St. Martin Land Co., 16 bbl., 9/64-in. choke, perf. casing 10,051-94 ft., T.D. 10,527 ft.
Anse La Butte field: Stanolind 1 Castille, 195 bbl., 5/32-in. choke, top sand 5,965 ft., T.D. 7,103 ft.

St. Mary Parish

Charenton field: Pan American 10 South Coast Corp., dry, T.D. 1,845 ft.

LOUISIANA GULF COAST DRILLING REPORT

Calcasieu Parish

Gulf 1 Calcasieu National Bank, Hayes prospect, 18-11s-5w, drilling shale 9,330 ft.
Gulf 1 Miller, deep test southeast flank Edgerly field, drilling shale 8,258 ft.

(Continued on Page 79)

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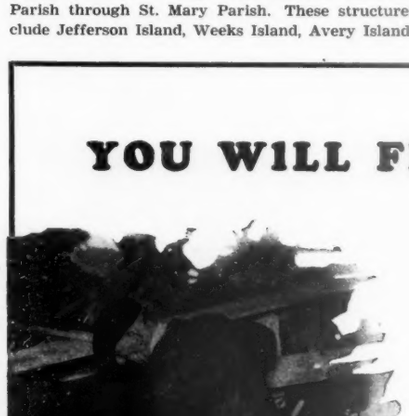

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EASTERN TEXAS FIELDS

Wildcats Started or Planned In Widely Scattered Areas

By R. MARNE SANFORD

DALLAS, Tex., Apr. 7.—Exploratory tests are starting in five counties of eastern Texas while plans are under way for wildcats in four additional counties of the district. Those sharing in the new exploratory development are Rains, Wood, Rusk, Anderson, Limestone, and Van Zandt counties with tests definitely under way, and Morris, Bowie, and Navarro counties where deals for drilling wildcats are still pending.

RAINS COUNTY.—Derrick is up for the planned Woodbine test of L. L. Prock, of Shreveport, in northeastern Rains County, staked as 1 F. L. Grimes, 5 miles northeast of Emory. Location is 467 ft. from the south and 990 ft. from the west lines of the northeast corner of the Sam Yandell Survey, on a 5,000-acre block.

WOOD COUNTY.—The scheduled Woodbine sand test in northeastern Wood County, previously announced by Fred Browning, of Arlington, has been staked as John C. Robbins and Browning 1 Mrs. M. N. Andrews. The site is 467 ft. from the south line and 644 ft. from the west line of the J. R. Smith Survey, southwest of Andrews Park Lake and 9 miles north of the Hawkins field. The operators hold a 3,900-acre block in the area.

RUSK COUNTY.—Arrangements are being made to move in at the planned Woodbine sand test of Ross Sears, Troupe, in the Laneville area of south central Rusk County. The location was staked as 1 Pool et al on the east side of a 71-acre tract in the George May Survey. A. O. Phillips, of Dallas, is associated with Sears in the wildcat. It is on a block of about 3,000 acres.

ANDERSON COUNTY.—In the southwest corner of Anderson County, B. T. Royalties 1 S. F. Coleman has been staked 553 ft. from the north and 500 ft. from the west lines of the Coleman tract in the J. A. Box Survey 10. The location is about 5 miles northeast of Navarro Crossing and 8 miles west of Elkhart. It is on a block taken by Housh & Thompson, of Houston, who turned a half interest to T. B. Slick, Jr., San Antonio, for the well.

LIMESTONE COUNTY.—Zephyr Oil Co., Tyler, has announced location for 8 Carrie Peeples, a new operation in the Techuacanna Woodbine sand field of northern Limestone County. It will be an exploratory test in that the contract depth is the deep Travis Peak section of the lower Trinity series. The derrick is up and location is 500 ft. from the south and 300 ft. from the east lines of the lease and in the R. Scott Survey. Several Travis Peak tests have been drilled in Limestone County, there being a small gas and distillate field producing from the deep level south of the Techuacanna field.

Other Exploratory Tests Planned

VAN ZANDT COUNTY.—The Wills Point area of Van Zandt County appeared in line for a new Woodbine sand test. Mrs. S. O. Thompson and F. R. Jackson, the latter being a partner in the firm that opened the Hawkins townsite field in Wood County, have announced plans to drill on a 6,000-acre block about 5 miles south of Wills Point and in the northwestern part of the county. Definite location has not been announced, but the block is out of the Davis Clapp, John Jackson, B. Burton, and other surveys in the area.

MORRIS COUNTY.—Stanley A. Thompson, Fort Worth, and others are reported blocking acreage northeast of Naples and along the Morris and Cass county line with intentions of drilling a 5,500-ft. test. A $1-per-acre bonus is being paid with the block centering around the Thomas W. Brooks Survey.

BOWIE COUNTY.—North from Dalby Springs, in southwestern Bowie County, W. B. Hinton, of Mount Pleasant, and others are blocking acreage around the William S. Aiken Survey, reportedly agreeing to drill a Paluxy sand wildcat test.

NAVARRO COUNTY.—A. L. Willis, Corsicana, has taken over an 8,000-acre block in southwestern Navarro County and is reported planning a wildcat for the near future. The acreage is in the A. C. Wingate, J. A. Lee, A. L. Trammel, and M. S. Denton surveys and is between Rooney and Dawson.

SUMMARY OF COMPLETIONS

East Texas Field
(One-hour gages)

	No.	Bbl.	Footage
Oil: Longview area	7	448	25,268
Kilgore area	5	319	17,882
Joiner area	2	90	7,088
Total	14	.....	50,238

East Central Texas

Oil: Hawkins field	5	1,786	23,559
Old Wortham field	2	259	6,010
Other fields	3	690	13,550
Gas: Opelika field	1	*78	8,185
Dry: Wildcat	1	.....	765
Total	12	.....	52,069

*Million cu. ft.

Hawkins Field Still Increasing in Activity

Ever increasing in activity since its discovery late last year, the Hawkins field of southeastern Wood County is second only to the large East Texas field in total activity. There were five new completions in the Hawkins field the past week and a total of five locations. There are 18 active operations in the field and 7 locations being prepared for drilling, which brings the total to 25 for the field.

The East Texas field, until its decided upturn in drilling activity about 6 months ago, was due to be practically inactive at this time. However, a total of 14 new completions were recorded the week past, with 9 new locations being made.

EAST TEXAS FIELD COMPLETIONS

Gregg County

Longview area: Deep Rock Oil 21 Pritchard, 80 bbl. in 30 min., 3,540-75 ft.
General American 20 Adams, 22 bbl. in 1 hr., 3,515-94 ft.
General Crude 6 fee, 20 bbl. in 30 min., 3,493-98 ft.
Kilgore area: T. D. Humphries 29 Spear, 25 bbl. an hr., 3,543 ft.
T. D. Humphries 30 Spear, 30 bbl. in 40 min., 3,545-68 ft.
Salmon Oil 4-A Smith, 100 bbl. an hr., 3,543-70 ft.
Shell 92 Watson, 18 bbl. in 20 min., 3,577-3,698 ft., P.B. from 3,708 ft., T.D.
Sinclair Prairie 28-B King, 45 bbl. in 30 min., 3,412-71 ft.

Rusk County

Joiner area: Retsal Oil 8 Rollins, 20 bbl. in 20 min., 3,602-17 ft.
Tide Water 13-A Thompson, 30 bbl. an hr., 3,646-71 ft.

Upshur County

Longview area: Magnolia 38 Free, 45 bbl. an hr., 3,697-3,700 ft.
Margay Oil 20 Victory, 16 bbl. in 15 min., 3,600-05 ft.
Mudge Oil 15-A Richardson, 48 bbl. in 30 min., 3,685-3,712 ft.
Stanolind & Falcon 3 Cannon, 25 bbl. an hr., 3,583-84 ft.

EASTERN TEXAS WILDCAT REPORT

Camp County

Lucey 1 McKenzie, L. William Sur., ¾ mi. W of Pittsburg field, moving in rotary.

Anderson County

Griffith Bros. 1 Clayton, William Frost Sur., Elkhart area, S.D. 50 ft.
R. H. & W. Oil 1 Saunders, 17-acre tract in Joseph Ferguson Sur., in Frankston townsite, top sub-Clarksville 4,874-4,910 ft., S.D. 5,225 ft.
Texas 1 Greenwood, M. Salisar Sur., 4 mi. NW Palestine, top Austin 4,257 ft., Woodbine 4,815 ft., sand 4,858 ft., drilling 4,870 ft.
Huddleston & Prater 1 Pfaff, R. Allen Sur., 5 mi. NW Palestine, S.D. 1,101 ft.

Thicknesses from 1/64" to 1/4". Sheets 40" x 40" and larger.

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GARLOCK

B. T. Royalties 1 Coleman, NW cor. Coleman tract in J. A. Box Sur. 10, first report.

Falls County

Kelsey & Miller 1 Reed, A. de la Serda Sur., 3 mi. NE Marlin, derrick.

Fannin County

H. W. English 1 Parkhurst, M. P. Davis Sur., 7 mi. W of Leonard, derrick.

Houston County

G. C. Dixon 1 Texas Long Leaf Lbr. Co., J. Chears Sur., 5 mi. W of Lovelady, spudding.

Lamar County

Whitehead & Dahl Bros. 1 J. M. Barr, P. Compton Sur., 9 mi. S of Paris, derrick.

Limestone County

Zephyr Oil 8 Peeples, R. Scott Sur., in Techuacanna field, deep Travis Peak test, first report.

Navarro County

Hargrave Oil 1 C. S. West, M. Boren Sur., 1½ mi. S of Richland, T.D. 3,257 ft., salt water.

Rains County

L. L. Prock 1 F. L. Grimes, SW NE Sam Yandell Sur., 5 mi. NE Emory, first report.

Robertson County

C. C. Baker & Son Middleton, J. S. McNeil Sur., 2 mi. S of Elliott, S.D. 20 ft.
H. A. Clary 1 A. G. Scott, H. F. Thornton Sur., 2 mi. W of Franklin, derrick.

Rusk County

Delta Drilling Co. 1 Kangerga, 113-acre tract in R. Lane Sur., 3 mi. N of Henderson, 8,200-ft. test, top Glen Rose 4,764 ft., first anhydrite 5,560 ft., second anhydrite 5,930 ft., top massive anhydrite 6,200 ft., top Pettit 7,293 ft., 15-min. D.S. test showed no pressure and slight show oil, T.D. 7,502 ft.
Beddinghouse 1 J. A. McCreary, H. Huejas Sur., 6 mi. SW of Enterprise, S.D. 204 ft.
Ross Sears 1 Pool, George May Sur., Laveville area, first report.

Upshur County

Sun Oil 1 W. C. Henderson, NW cor. of 27-acre tract in 100-acre tract in Robertson Asher Sur., just outside town of Ore City, 7,000-ft. test, top first anhydrite 6,079 ft., second anhydrite 6,676 ft., base massive anhydrite 6,924 ft., drilling 7,230 ft.
L. S. White and O. S. Strickland 1 Gorman, S. G. Clayton Sur., 1 mi. SW of Big Sandy, derrick.

Wood County

Jackson & McGlothlin 1 Moore, 10-acre tract in Joseph Knight Sur., in Crow townsite, Woodbine sand test, 5½-in. at 4,951 ft., T.D. 5,654 ft., prepare test section 4,854-62 ft.
Fred Browning and J. C. Robbins 1 M. N. Andrews, SW cor. J. R. Smith Sur., 9 mi. N of Hawkins, first report.

EAST CENTRAL TEXAS COMPLETIONS

(24-hr. gages)

Anderson County

Cayuga field: Carter-Gragg Oil 35 McMahon, 163 bbl., 4,017 ft., T.D.
Long Lake field: Tide Water & Seaboard 10 Minning, 47 bbl., 5,202-66 ft.

Franklin County

Talco field: Humble 23 Penn-fee, 48 bbl., in 2 hr., pumping, 4,222-67 ft.

Freestone County

Wortham field: B. Carter 1 Calame, 119 bbl. net oil, 90 per cent of fluid salt water, 2,996-3,014 ft.
B. Carter 1 Crouch, 140 bbl. net oil, 80 per cent of fluid salt water, 2,937-96 ft.

Henderson County

Opelika field: Lone Star & Shamrock 1 Magers, 78,000,000 cu. ft. gas, 52 bbl. distillate per 1,000,000 cu. ft. of gas, perforated casing 8,061-78 ft. and 8,134-85 ft.

McLennan County

Wildcat: E. P. Campbell 1 Stewart, S. Burton Survey, in townsite of Elm Mott, dry at 765 ft.

Wood County

Hawkins field: Cable Tool Drlg. Co. 1 Colored School land, 112 bbl. in 6 hr., 4,570-80 ft.
General American 1 Giles, 232 bbl. in 12 hr., 4,605-4,794 ft.
General American 1 Smith, 120 bbl. in 6 hr., 4,558-4,600 and 4,627-89 ft.
Humble 1 Moore, 253 bbl. in 18 hr., 4,752-58 ft.
H. W. Stoddard 1 Cemetery lot, 364 bbl. in 18 hr., 4,673-92 ft. and 4,722-38 ft.

West Central Texas Fields

(Continued from Page 64)

Fisher County

General Crude Oil 12 Flanigan, center of old Royston field, top Ellenburger 6,094 ft., drilling 6,693 ft. with H.F.W.
F. A. Stephenson 1 Humphries, NW NW Sec. 49, Blk. 1, H.T.&B. Sur., 2,350-ft. test, top lime 2,985 ft., dry lime 2,985-92 ft., T.D. 3,020 ft., show oil 3,018-20 ft., prepare to test.
P. R. Long 1 W. F. Davidson, SE NW Sec. 59, Blk. 1, H.T.&B. Sur., 4,300-ft. test, S.D. 100 ft.
Landers & Eisele 1 Mose Newman, SE NW Sec. 8, Blk. 20, T.&P. Sur., 10-in. 301 ft., oil lime 3,416-34 ft., treated and tested only mud, 7-in. 3,414 ft., testing, drilling 3,935 ft., show oil 3,660-65 ft.
P. R. Long 1 Maberry, SE cor. A. A. Spring Sur., 2 mi. SW of McCaully, show oil 3,250-79 ft., waiting on spudder.

Hamilton County

A. J. Caldwell 1 W. W. Jones, 1,002 ft. from NE, 150 ft. from SE lines, W. H. Crowder Sur., correction, S.D. 2,999 ft.
Gunther & Smith 1 Thompson, 467 ft. from SE and 4,533 ft. from SW lines of Rhody Kennedy Sur., spudded and S.D.
Groover & Rose 1 Joe Fuqua, 1,600 ft. from W and 640 ft. from S lines of J. W. Bowers Sur., 3,000-ft. test, 13⅛-in. 310 ft., drilling 1,133 ft.

Jones County

H. Hines and W. D. Brookover 1 A. N. Wimberly, SW SW Subd. 91, De Witt C.S.L. Sur., 2,500-ft. test, saturation 2,215-33 ft., installing pump, est. 50 bbl. oil per day, T.D. 2,500 ft., reaming 7-in. casing to total depth.
Danciger Oil & Ref. 1 Jacob Foster, SE½ W 100 acres, SW½ Sec. 13, Blk. 13, T.&P. Sur., 3,000-ft. test, 8¼-in. at 1,782 ft., cleaning out 2,438 ft., T.D.
Fain-McGaha 1 Cooper, SE SE SW Sec. 20, Blk. 15, T.&P. Sur., 4,000-ft. test, drilling 4,242 ft.
W. W. Fondren 1 C. P. Rogers, 126-acre tract in N½ Sec. 32, Blk. 18, T.&P. Sur., 3,100-ft. test, 15½-in. at 100 ft., drilling 1,515 ft.
Groover & Rose and Jones & Stasney 1 Owens, SE SE Sec. 46, Blk. 15, T.&P. Sur., 2,000-ft. test, running 8¼-in. at 1,735 ft.

McCulloch County

W. J. Willard 1 E. B. Garrett, 467 ft. from N and E lines of Sur. 934, Abst. 1196, 3,000-ft. test, T.D. 804 ft., preparing to quit as dry.
Clark 1 Lively, SE cor. Sec. 931, H. F. Hetzfeldt Sur., 650-ft. test, 7-in. 820 ft., drilling 859 ft.

Menard County

W. F. Sorrell 1 Wilkerson, NW cor. Sec. 1549, C. A. Zimmerman Sur., Abst. 827, 4,000-ft. test, correction, 15½-in. at 190 ft., S.D. repair 300 ft.

Mills County

C. D. Lane 1 Egger, 2,078 ft. from N and 450 ft. from W lines Sec. 4, Wm. Haynes Sur., 3,500-ft. test, first report.

Palo Pinto County

Hickok Prod. and Reynolds 1 J. R. Halsell, 467 ft. from S and W lines, Sec. 92, B.B.B.&C. Sur., Abst. 105, 5,500-ft. test, drilling 4,150 ft.
W. K. Gordon 1 Noland, NE SE Sec. 86, Blk. 3, T.&P. Sur., 3,500-ft. test, reaming 7-in. at 3,450 ft.

Parker County

J. L. Higginbotham 1 Wheeler, SE cor. J. B. Brannon Sur., Abst. 1928, 5,000-ft. test, first report.

Shackelford County

B. & F. Cotton Warehouse 1 Snyder, NE SW NE Sec. 32, L.A.L. Sur., 800-ft. location.
J. F. Baker and M. E. Daniels 1 Davis, SE NW Sec. 3, Blk. 13, T.&P. Sur., 1,700-ft. test, drilling 1,825 ft.
E. M. Doloach 1 Cook, SE SE NE Sec. 64, E.T. Sur., prepare to spud.
Georgian Oil 2 Blach, 1,290 ft. from SE and 540 ft. from SW lines, Sec. 391, T.E.&L. Sur., spudded and S.D.
Ungren & Frazier 1 Elliott, NW NW Sec. 19, L.A.L. Sur., 850-ft. test, S.D. 238 ft.
Glen Myers 1 Green, SE NW Sec. 68, Blk. 12, T.&P. Sur., 1,500-ft. test, prepare to move in materials.

Stephens County

Aragon Oil 1 Walls Pasture, SW cor. Sec. 39, B.A.L. Sur., 4,000-ft. test, first report.

Stonewall County

Leader Oil 3 Carlisle, 2,136 ft. from N and 2,127 ft. from E lines of Sec. 292, Blk. D, H.&T.C. Sur., 5,250-ft. test, drilling 1,300 ft.
Shell 1 Rutherford, SE NE Sec. 144, Blk. 1, H.&T.C. Sur., top Ellenburger 6,189 ft., T.D. 6,239 ft., salt water, S.D., moved off rotary.
Ce-Beth Oil 1 City of Abilene, south shore of Lake Abilene on city property, 4,000-ft. test, T.D. 2,480 ft., top lime 2,443 ft., show oil 2,453-78 ft., fishing 2,605 ft.

Permian Basin

(Continued from Page 59)

Penrose field: J. C. Clower 3 Humble-State, 29-22-37, flowed 72 bbl. daily, 820-qt. shot, 3,529-3,690 ft.
Stampfli & Martin 1 Repolo-Christmas, 28-22-37, pumped 60 bbl. daily, 360-qt. shot, 3,540-3,688 ft.
Eaves field: Stanolind 6-A Farnsworth, 18-26-37, flowed 147 bbl. in 2 hr., natural, open tubing, 2,910-3,010 ft.
Halfway field: Argo Oil 3 State, 16-20-32, pumped 400 bbl. daily, 40 per cent water, 2,678-81 ft., 2,000 gal. acid.

SOUTHEAST NEW MEXICO WILDCAT REPORT

Chaves County

L. E. Elliott 1 State ..... NW NE 16-11-31
S.D. repairs at 3,780 ft.
Roxana Oil 1 Maull ..... NE NW 11-12-25
Setting 8¼-in. at 624 ft., last report.
A. F. Pierce 1 Franks ..... SE NW NW 17-9-5
T.D. 990 ft., P.B. 887 ft., shot 40 qt. 864-87 ft., testing.
Holmes-Martin 1 Stephens ..... C NW NE 22-15-29
Old well drilling deeper, T.D. 3,210 ft.
H. Steinberger 1 Headley ..... NW SW 26-14s-29e
T.D. 3,405 ft., sulfur water 3,400-5 ft.
R. T. Wilson 1 L. B. Brown ..... C NW SW 29-11-23
T.D. 890 ft., last report.

Eddy County

Harry W. Long 1 Anderson ..... N½ 16-22-20
Location.
G. M. Cone 1 Hare ..... NW NW NE 11-16-28
Old well drilling deeper, T.D. 1,830 ft., showing est. 250,000 cu. ft. daily, testing.
Jack Harris 1 Josey ..... SW SE 19-20-23
T.D. 643 ft.
Jones & Yates 1 Everest ..... NE SE 15-18-26
270-qt. shot 1,934-84 ft., and 670-qt. shot 1,485-1,710 ft., set new casing, still testing.
Olen F. Featherstone 1 Johnson ..... SW SW 10-19-27
Location.
J. H. Rives 1 Boulter ..... SW SW SW 21-19-27
Location.
Basin Oil 1 Kimmell ..... NE NE NE 5-20-26
1,620-ft. test, T.D. 505 ft., reaming casing.
W. A. Suddreth 1 N. H. Wills, 6 mi. W of Getty field, NW SE 14-20-28, gas sand 778-83 ft., tested 7,000,000 cu. ft. daily, trying to cement casing at 638 ft. after braden head blew off, gas volume increased to 11,000,000 cu. ft. daily, S.D. at T.D. 738 ft., testing for completion.

TEXAS PANHANDLE

AMARILLO, Tex., Apr. 7.—There were 10 completed wells in the Panhandle fields during the past week, all oil wells. The new wells added to the field a daily potential of 1,631 bbl.

New locations were still ahead of the normal for the district, there being 17 staked the past week, or only one behind the previous week's total of 18. There have been 220 new tests staked in the Panhandle fields since the first of January 1941. The past week's locations were 10 in Hutchinson County, 5 in Gray County, and 2 in Carson County. Of the total Hutchinson County locations, seven were by Phillips Petroleum Co., which staked its Nos. 59 to 62, inclusive, on the Cockrell ranch and three other tests on acreage held in the county.

TEXAS PANHANDLE COMPLETIONS

(24-hour pumping gages)

Carson County

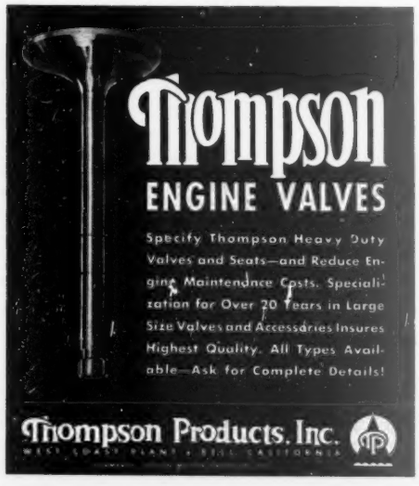
Skelly Oil 116 Schaffer, 96 bbl., 500-qt. shot, 3,075-3,105 ft.
Cities Service 7 Magnolia fee "F," 211 bbl., 105-qt. shot 3,118-50 ft.

Gray County

Danciger Oil & Ref. 20 Powell-Beck, 119 bbl., 2,856-70 ft.
W. D. Kelly 2 Hood, 423 bbl., 600-qt. shot, 2,995-3,074 ft.

Hutchinson County

McIlroy Oil 6 Tomlinson, 200 bbl., 780-qt. shot, 3,112-3,178 ft.
Stekol Oil 5 Whittenburg, 66 bbl., natural, 2,881-2,925 ft.
Stekol Oil 8 Whittenburg "M," 27 bbl., natural, 2,960-3,068 ft.
Skelly Oil 14 Watkins, 165 bbl., 485-qt. shot, 2,725-73 ft.
Phillips 56 Cockrell, 157 bbl., 330-qt. shot, 2,953-3,056 ft.
Kewanee Oil & Gas 52 Badger, 167 bbl., 200-qt. shot, 2,919-70 ft.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NORRIS BROTHERS, INC.
ROBINSON, ILLINOIS

Matagorda County Test Opens New Field; Two Others Show

By NEIL WILLIAMS

HOUSTON, Tex., Apr. 7.—The discovery of a new field in Matagorda County, recovery of several hundred feet of pipe-line oil in a wildcat southwest of the Silsbee field, Hardin County, and the blowout of a semiwildcat in the West Beaumont field, Jefferson County, marked up an interesting week of developments for the Texas Gulf Coast district the past week.

The new discovery is Stanolind 1 L. F. Huebner, about 2½ miles west of the Hamman field, Matagorda County, which at the close of the week was flowing at the rate of 38 bbl. of fluid per day through a 3/32-in. choke. Sixty-eight per cent of the fluid was oil and the balance mud and wash water. Tubing pressure was 1,100 lb. The well was drilled to a total depth of 10,500 ft., and production was obtained by perforating casing at 8,883-86 ft. The sand section corresponds with that of the Hamman field, and the completion is expected to result in additional wildcat activity throughout the county. Location is in the E. Hall Survey.

SUMMARY OF COMPLETIONS

	No.	Bbl.	Footage
Oil wells: Lolita	5	911	28,231
West Ranch	2	651	11,587
Other fields	13	3,070	72,291
Gas wells: Fields	1	.....	7,836
Dry holes: Fields	5	.....	24,942
Total	26	.....	144,888

The probable pool opener is Republic Production Co. 1 Elliott fee, approximately 1½ miles southwest of the Silsbee field, Hardin County, which is cementing casing for a production test following a drill-stem test in the Cockfield sand which recovered pipe-line oil. The sand section was topped at 6,918 ft., and after coring sand to a total depth of 6,923 ft., a 30-minute drill-stem test was made at 6,920-23 ft. The well tested 725 lb. working pressure and flowed oil for 15 minutes. After the testing tool was closed, 630 ft. of oil was recovered.

This well showed for a pool opener 3 weeks ago when oil and salt water were recovered from approximately the same depth. However, the hole was deepened to a total depth of 7,049 ft., plugged back, sidetracked and recored the sand in a sidetracked hole, the bottom of which is located about 400 ft. west of the original hole. Although the sand section corresponds with that of the Silsbee field, the completion of the well for a producer will no doubt be looked upon as a new field inasmuch as two dry holes, possibly due to faulting, have been drilled between the well and the field proper.

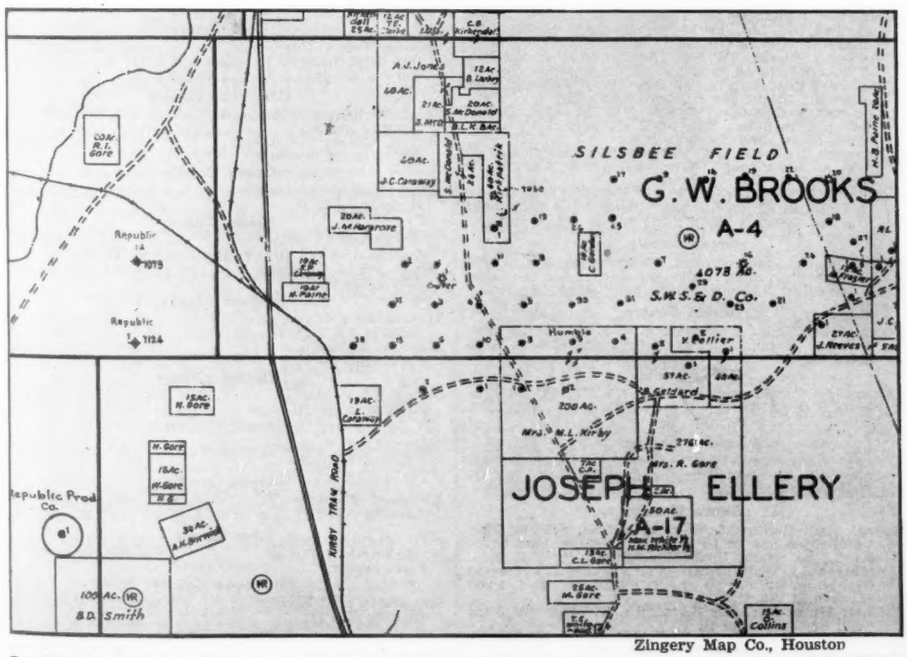
West Beaumont Extended East

A major extension to the West Beaumont field, Jefferson County, was assured by the blowout of Stanolind 1 Kaufman Investment Co., about 4,750 ft. east of production. The well topped salt-water sand at 6,021 ft., and after coring to a total depth of 6,024 ft. an electrical survey was made and showed the following results: Gas sand, 4,560-90 ft.; oil sand, 5,392-5,400 ft.; salt-water sand, 5,400-14 ft., and gas sand, 5,620-40 ft. Five and one-half-inch casing, cemented at 4,710 ft., was perforated at 4,555-75 ft., and the well blew out while the crew was attempting to set packer. At the close of the week the well was brought under control after flowing an estimated 50,000,000 cu. ft. of gas per day.

The newly opened 6,400-ft. sand in the Ganada field, Jackson County, was scheduled to receive its second producer as Texas Co. cemented 5½-in. casing in 3 Mortgage Land Co. on bottom at a total depth of 6,472 ft. This is the second well to be deepened to the new sand from the originally discovered pay at 5,100 ft. which produces gas and distillate throughout the field.

A slight south extension to the Cordele field, Jackson County, was made as Frost & Dunham 1 Pressley flowed 450 bbl. of 21-gravity oil per day through a ¼-in. choke from sand at 2,740-47 ft. The well was drilled on a Shell Oil Co., Inc., farmout located in the Peter White Survey. A wildcat location was announced for the Mauritz area by Moore & Ahern who are moving in material for 1 Toney.

Mechanical trouble continues to delay the completion of Strake 1 Griffith, a prospective pool opener, located in the Halls Bayou area, Brazoria County. While cleaning out through a ⅝-in. choke from perforated casing at 10,330-54 ft., the screen was cut out and the well had to be killed. The crew is pulling screen to reset and recomplete. While testing, tubing pressure built up to 1,100 lb.



Zingery Map Co., Houston

Republic Production Co. 1 Elliott fee, indicated above by circle, 1½ miles southwest of the Silsbee field, Hardin County, looms as the discovery well of a new field or a major extension to the Silsbee field, proper

Brazoria County Wildcats Testing

In the Rowan field, Brazoria County, Humble 6 Hubbard, northeast of production, is bottomed at 9,100 ft., and casing is being cemented on bottom preparatory to testing following an electrical survey. Sand and shale with an oil show was logged at 8,525-34 ft., and 8,534-54 ft.

In the same county and located in the Chocolate Bayou field, Phillips 1 Triangle Development Co., 1 mile east of production, flowed salt water with no showing of oil from perforated casing at 9,950-53 ft., where a previous drill-stem test recovered pipe-line oil and salt water. The perforations were cemented off, and the well was scheduled to be retested the first of the week.

On the northwest flank of the Fannett dome, Jefferson County, Gulf 6-E Marrs-McLean is bottomed at 8,317 ft., and 5½-in. casing was cemented at 8,280 ft. after an electrical survey showed sand with an oil show at 8,283-95 ft. and 8,295-8,317 ft. Superior 1 Bordages, an outpost well, is drilling ahead in shale and lime below 9,326 ft.

British American 2-71 State, the discovery well of a new field 9,000 ft. offshore from Jefferson County in the Gulf of Mexico, flowed 291 bbl. of 26.7-gravity oil per day on a 24-hour potential test, through a 4/64-in. choke. Tubing pressure was 750 lb., and casing pressure 125 lb. The well was completed the previous week by perforating casing in the Miocene sand at 4,980-90 ft.

TEXAS GULF COAST COMPLETIONS

Brazoria County

Old Ocean field: Stanolind 4 Giles, 444 bbl., ¼-in. choke, perf. casing 10,102-37 ft., T.D. 11,018 ft.
West Columbia field: Texas 21 Phillips, 400 bbl., ¼-in. choke, perf. casing 5,630-60 ft., T.D. 5,680 ft.

Chambers County

Anahuac field: Humble 35 Johnson, 475 bbl., ¼-in. choke, T.D. 7,227 ft.

Fort Bend County

Thompson field: J. H. Blaffer 1-B Davis, 116 bbl., 1/8-in. choke, sand 5,369 ft., T.D. 5,445 ft.
H. M. Naylor 7-C Hampil, 173 bbl., ¼-in. choke, perf. casing 7,906-09 ft., T.D. 7,911 ft.

Galveston County

Caplen field: Sun 7 Zinn & Foreman, gas well, perf. casing 7,225-35 ft., T.D. 7,836 ft.

Hardin County

Batson field: Ada Bel Oil Co. 294 Honeymoon, 20 bbl. oil and 66 bbl. water, pumping, top sand 414 ft., T.D. 472 ft.

Harris County

Humble field: Wilson 6 Holmes, 234 bbl., pumping, top sand 1,144 ft., T.D. 1,160 ft.

Jackson County

Lolita field: Humble 13-A L. Ranch, 456 bbl., ¼-in. choke, sand 5,274-80 ft., T.D.
Luling 1 Johnson, 90 bbl., 7/64-in. choke, perf. casing 5,935-37 ft., T.D. 5,337 ft.
Magnolia 15 Mitchell, 242 bbl., 11/64-in. choke, sand 5,290-5,302 ft., T.D.
P. R. Rutherford 1 W. J. Moody, 77 bbl., 5/32-in. choke, perf. casing 5,938-42 ft., T.D. 5,943 ft.
W. S. Boyle 4 L. Ranch, dry, T.D. 5,506 ft.
Maurbro field: Humble 2 Bonnot, dry, T.D. 5,425 ft.
West Ranch field: Forest Development Co. 3 Dixon, 46 bbl., 5/64-in. choke, perf. casing 5,760-66 ft., T.D. 5,769 ft.
Magnolia 8 Magnolia-Bennett, 168 bbl., 9/64-in. choke, perf. casing 5,755-65 ft., T.D. 5,771 ft.
W. R. R. Oil Co. 7 State, 483 bbl., ¼-in. choke, perf. casing 5,585-92 ft., T.D. 5,816 ft.

Jefferson County

South China field: George Echols 1 Broussard, 186 bbl., ¼-in. choke, T.D. 7,918 ft.
Wildcat: British American Producing Co. 2-71 State, 291 bbl., 12/64-in. choke, perf. casing 4,982-92 ft., T.D. 6,721 ft.

Liberty County

Hardin field: Woodley 3 Humphrey, 157 bbl., 4/64-in. choke, perf. casing 7,611-20 ft., T.D. 7,658 ft.

(Continued on Page 80)

By

ROBERT INGRAM

West Hewitt Leads Activity With Thirty Operations

DEVELOPMENT of the West Hewitt pool in the southwestern part of the state, a late 1940 discovery, had reached small boom-time proportions last week as six new oil wells were completed for a total daily potential of 2,511 bbl. (see completions below) and 30 operations were active in the field. Drilling has held to a lively pace in the new pool ever since it was opened in September 1940 at W. F. Turner 1 Ward, NW NW NW 28-4s-2w.

At first it was believed the pool would eventually join the older Healdton and Hewitt pools which lie immediately to the west and east. However, it is cut off from both by dry holes and development is spreading north and south from the discovery well. Early wells completed in the pool were good for 50 to 55 bbl. a day, but the initial production has increased in the newer wells until some of them make nearly 1,000 bbl. while flowing only a few hours.

The area is particularly attractive because of the relatively shallow depth of the pay sand which is found at about 2,000 to 2,250 ft.

Meantime, proven production in the Cement pool of Caddo County, also in the southwestern part of the state, was extended on the west side by Ray Stephens, Inc. 2 Wilhite, SW NE SE 28-6-10w. The new well was completed from pay sand at 3,640-69 ft. for a daily potential of 810 bbl. This area, too, continued active in spite of the fact that outlets are extremely limited and the field is prorated largely on the basis of refinery capacity of the Anderson-Prichard plant at Cyril which is about 7,500 bbl. a day.

SUMMARY OF COMPLETIONS

	No.	Bbl.	Footage
Oil wells: Cement	1	113	3,641
Dill	2	1,263	7,194
West Hewitt	6	2,511	13,374
Hobart	2	111	2,522
Other fields	5	973	21,526
Dry holes: Fields	6	.....	15,876
Wildcats	3	.....	9,744
Total	25	.....	61,877
Recompletions	3	177	.....

Cement Outpost Is Producer

Ray Stephens was drilling at 2,505 ft. at 1 Pohleman, NE NE NW 33-6-10w. Ohio Oil Co. and Ramsey Petroleum Co. 11 Wagner-2, NW NW SW 15-5-9w, on the east side of the field, had sand at 3,183 ft., drilled to 3,655 ft. in crooked hole, plugged back and redrilled and at last report were waiting on orders. Magnolia Petroleum Co. also had a rig drilling on the west side of the field east of the Stephens completion.

Cement is one of the older areas of the state, having been opened to production in 1926, but it has also been one of the most baffling to operators because of the badly broken formations that so far have defied an accepted correlation. Periodically the field has a revival and late in 1939 had a townsite boom set off by the B. F. Johnson et al 1 McKenna, Block 16, Cement townsite, 3-5-9w. At least 18 pay zones have been found in the field from depths of 1,050 ft. to 6,400 ft. The combined problems of geology and outlets, however, have held back intensive drilling.

A number of wildcats were approaching final stages in scattered areas of the state. Kerlyn Oil Co. was testing a show of oil at 1 Wareing, SW NE SW 33-19-4w, north of the Lovell townsite in Logan County. Previously the well failed to make a good showing on a drill-stem test at 4,813 ft. where circulation had been lost. Considerable mud filled the pipe with a whiff of gas and a little oil. Tubing was run to near bottom and swabbing was started.

The test is located on the north end of the Lovell structure near the center of a block acquired several months ago from Fred Morgan and associates. It is 3½ miles north of production on the Lovell structure, but is cut off by a 4,719-ft. dry hole in SW SW NW 9-18-4w, and a 4,504-ft. dry hole a quarter mile to the east.

Wildcatting Spreads in Logan County

Other Logan County wildcats were reported planned by several companies and considerable buying on geophysical highs was under way. Carl Ford and Floyd Corner were reported taking a block for the Continental Oil Co. west of the new Guthrie pool, and have taken tracts in Sections 4, 5, 6 and 8-17-2w and the SW of 32-18-2w. Carter Oil Co. is said to have a tentative location in 6-18-2w on a block which spreads over the corner of surrounding townships, and John A. Lilly of Oklahoma City was attempting to get a lease on 16 acres in Noble park in the Guthrie townsite.

Meantime three wells were drilling in the new Guthrie pool and a fourth location was made. Continental 1 Donoghue-A, NE NE SW 7-17-1w, was drilling at 2,434 ft.

Sinclair Prairie 1 Sultz, SW SW NE 7-17-1w, was drilling at 2,434 ft., and H. L. Criswood was starting 1 Eastwood, NE NW SW 7-17-1w. A mile south of the discovery well, Big Chief Drilling and North American Oil Co. 1 Belle Hirzel, NE NW SE 18-17-1w, was still a location.

Trading for acreage around J. E. Crosbie et al 1 Hogle, SE SE SW 29-20-2e, in Payne County, was active for a few days but died out when salt water was found in the first Wilcox zone. Operators were deepening at 4,808 ft. at week's end to test the second Wilcox.

Ramsey Petroleum Corp. 1 Harryman, W½ SE NW 27-2-9, was drilling ahead after it struck a gas sand at 1,225-55 ft. which blew out at 1,227 ft.

OKLAHOMA COMPLETIONS

Caddo County

Cement pool: Stephens 2 Wilhite, SW NE SE 28-6-10. swabbed 113 bbl. in 4 hr., T.D. 3,655 ft., 7-in. 3,641 ft.
Stephens 4 Farwell, SW SW 27-6-10w, location abandoned.

Carter County

West Hewitt pool: Daube 3 fee, SW NW SW 17-4s-2w, flowed 385 bbl. in 14 hr. through tubing, T.D. 2,224 ft., 7-in. 2,170 ft.
Tucker 1 Shores, SW SW 17-4s-2w, flowed 450 bbl., T.D. 2,042 ft., oil sand 1,990-2,015 ft., 7-in. 1,990 ft.
Tucker 2 Shores, NW SW SW SW 17-4s-2w, flowed 450 bbl., T.D. 2,064 ft., 7-in. 2,020 ft.
Neustadt 1 Choate, NW NW NW 20-4s-2w, flowed 987 bbl. in 6 hr., T.D. 2,102 ft., perf. 1,953-89 ft., 2,006-14 ft., and 2,030-42 ft.
Neustadt 2 Choate, NW NW NW 20-4s-2w, flowed 12 bbl. an hr. through ⅝-in. choke, T.D. 1,995 ft., 6-in. 1,925 ft., 2-in. 1,991 ft.
Dixon 2-A Woodworth, NE NW NW 20-4s-2w, flowed 227 bbl. in 12 hr. through tubing, sand 1,999-2,021 ft., 7-in. 2,000 ft., T.D. 2,021 ft.

Creek County

Miscellaneous: Springer et al 1-A Freeman, NE SE NE 8-14-10, dry, T.D. 2,060 ft., 8-in. 1,632 ft., shot 2,013-48 ft., 1,000 ft. oil in hole, bailed dry.

Garvin County

Tussy pool: Skelly 2 Parton, NW NW NW 33-1-3w, pumped 56 bbl., T.D. 2,568 ft., P.B. 2,230 ft., 7-in. 2,161 ft.

Grady County

Chickasha field: Magnolia 8 Farwell, SW SE 26-5-8w, dry, T.D. 5,785 ft., cored 4,870-80 ft., dip 58°, cored 5,565-71 ft., dip 90°.

Jackson County

Altus pool: Burnham 9 Hensley, SW NW NW 10-1-20w, old well drilled deeper from 1,438 ft. to 1,602 ft., pumped 20 bbl.

Kiowa County

Hobart pool: Phillips 5 Warner, NE SE SE 19-7-17w, pumped 80 bbl. in 16 hr., 8-in. 1,180 ft., acid 1,180-93 ft., no result, limestone 1,209-21 ft., T.D.
McIntyre 3-A Watkins, SW NW NW 20-7-17w, flowed 31 bbl. an hr. for 10 hr., T.D. 1,301 ft., P.B. 1,200 ft., 5-in. 1,149 ft.
Wildcat: Hurst & Groth 1-A Groth, SW SW SW 3-4n-16w, dry, T.D. 409 ft.

Logan County

Langston pool: Amerada-Stanolind 1 Knight, SW SW 12-17-1w, old well P.B. from 5,100 ft. to 4,903 ft., perf. 4,852-71 ft., 4,000,000 cu. ft. gas and 7 bbl. oil.
Eason 1 Smith, SW NW NW 13-17-1w, old well P.B. from 5,128 ft. to 5,024 ft., perf. 4,915-40 ft., acid, flowed 150 bbl.

Lincoln County

Wildcat: K.G.F.F. 1 Adams, SW NW NW 3-14-4, dry, T.D. 5,059 ft., Hunton 4,795 ft., Wilcox 5,005 ft., 5-in. 4,959 ft.

Okfuskee County

Dill pool: Droppleman et al 3 Gahagen, NE SE NE 3-11-8, flowed 1,107 bbl. in 21 hr., Cromwell 3,540 ft., 5-in. 3,539 ft., T.D. 3,572 ft.
Lee 1 Ramsey, SE NE NW 35-12-8, potential 156 bbl., sand 3,575 ft., base sand 3,619 ft., T.D. 3,622 ft., P.B. 3,618 ft., shot 3,597-3,618 ft.
Wildcat: Hayes et al 1 McKernan, E½ SE NW 25-12-8, dry, T.D. 4,276 ft., 5-in. 4,064 ft., Wilcox 4,235 ft., second Wilcox 4,246-76 ft.

Oklahoma County

Oklahoma City: Phillips 1 Dalton, SW NE NW 34-12-3w, pumped 291 bbl. oil, 473 bbl. water, 8-in. 6,418 ft., Wilcox 6,454 ft., T.D. 6,576 ft., shot 6,539-76 ft.

Pawnee County

Keystone district: McNeill 1 Andrews, NW SE SW 11-20-9, dry, T.D. 2,300 ft., Bartlesville 2,197-2,300 ft., 8-in. 1,530 ft.

Payne County

Coyle pool: Texas 3 Graham, NE NW SE 11-17-1, pumped 150 bbl. oil and 150 bbl. water, T.D. 4,939 ft., P.B. 4,774 ft., perf. 4,667-75 ft.

Pontotoc County

Allen pool: Huddleston 1 Crumley, SE NE NW 24-5-8, dry, T.D. 780 ft., sand 705 ft.

Seminole County

Little River: Sinclair-Prairie 10 Gibson, SE SW 14-7-6, pumped 20 bbl. oil and 55 bbl. water, Cromwell 3,148-80 ft., 7-in. 3,149 ft., T.D. 3,188 ft.
West Little River: Patterson et al 1-A Conner, NW NE SE 20-7-6, dry, T.D. 2,830 ft., broken Earlsboro 2,777 ft.
West Seminole: Amerada 3 Karr, S½ SE SW 30-9-6, pumped 456 bbl., Wilcox 4,224 ft., T.D. 4,258 ft., perf. 4,223-55 ft.

Tulsa County

Keystone district: Plymate 1 Grayson, SW NW NE 28-19-10, dry, T.D. 2,121 ft., 8-in. 441 ft., sand 2,087-2,105 ft., show oil.

OKLAHOMA DRILLING REPORT

Caddo County

Texas 2 Smith ..... SE NW 2-5-12w
Drilling 250 ft.

Choctaw County

C. F. Carter 1 C. G. Shull ..... SE SW NE 20-6s-18e
Drilling 85 ft.

Cleveland County

Gus Delaney 1 Montgomery ..... SE NW NE 13-7-2w
Drilling 1,420 ft.

Coal County

Ramsey Pet. 1 Harryman ..... W½ SE NW 27-2-9
Gas sand 1,225-55 ft., blew out 1,227 ft., est. 5,000,000 cu. ft. gas, drilling 1,680 ft.

Comanche County

Bruce Runion 1 Whitehead ..... E½ W½ NE 3-1s-13w
Drilling 300 ft.
Roy E. Cooper 1-A Bowen ..... SE NW SE 29-2-9w
First report.

Cotton County

South Port Oil 1 Harris ..... NW NE 26-2s-13w
Drilling 1,385 ft.

Creek County

L. B. Jackson 1 Price ..... SE cor. 26-19-9
Layton 1,157-86 ft., drilling 1,615 ft.
Bryan Pet. 1 Corbray ..... NE NE NW 34-19-9
S.D. 2,650 ft.

Jackson County

Mutual Oil 1 Caves ..... NW cor. 36-4-21w
Drilling 1,437 ft.
Kerbow & Brittain ..... SE SW NE 31-1-19w
First report.

Jefferson County

Johnson 2 Bound ..... NE NE SW 13-6s-6w
Drilling 1,385 ft.

Lincoln County

Morgan-Gulf 1 School Land ..... NE SW NE 16-12-5
Drilling 2,265 ft.

Logan County

Kerlyn 1 Wareing ..... SW NE SW 33-19-4w
Lansing 3,950 ft., gas sand 4,279-92 ft., T.D. 4,810 ft.

Love County

N. H. Martin 1 Porter ..... SW NE SE 19-6s-3w
First report.

Muskogee County

Stormfeltz 1 Welmer ..... NW SW NW 16-13-16
Drilling 500 ft.

Okfuskee County

Texas 1 Butcher ..... N½ SE NW 15-12-5
Mayes 3,690 ft., Woodford 3,795 ft., Hunton 3,820 ft., Viola 3,955 ft., Wilcox 3,998 ft., second Wilcox 4,030 ft., T.D. 4,046 ft., to core.

Sunray 1 Spillman.....SW NW NW 4-10-9
Drilling 560 ft.
W. O. Carte 1 Bucco.....NE NE SE 20-10-12
T.D. 2,525 ft., repairing rig.
Alma et al 1 Replogle.....NW SW NW 14-11-10
Cromwell 3,171 ft., rigging standard tools.

Oklahoma County

Harper-Turner 1 Harper.....NW NW SW 17-14-2w
T.D. 5,925 ft., est. 10 bbl. per day.

Osage County

W. R. Dillard 1 Osage.....SE NW NW 22-21-9
T.D. 832 ft.
Superior Oil 1 Osage.....NW SE SW 23-22-8
T.D. 3,078 ft., Arbuckle, P.B. 2,578 ft., to test.
Black Jack Oil 1 Osage.....NE NE SW 29-25-7
S.D. 225 ft.

Okmulgee County

Vierson & Cochran 1 Tilt.....SE cor. 4-15-12
T.D. 1,695 ft., run 8-in.

Pawnee County

Dave Malernee 1-A Lucas.....NW SE NW 28-21-8
Drilling 3,030 ft. in Arbuckle.

Payne County

Crosbie et al 1 Hogle.....SE SE SW 29-20-2
Prue 4,065-80 ft., Bartlesville 4,220-35 ft., Mississippi 4,450 ft., drilling 4,562 ft.
Wood Oil 1 Daniel.....SE cor. 15-19-3
Oswego 3,490 ft., drilling 3,510 ft.
Gardner Pet. 2.....N½ SE SW 12-19-1w
Avant 3,010 ft., Dewey 3,160 ft., drilling 3,575 ft.

Pottawatomie County

J. T. Miller 1 Parsons.....SW SW NW 29-11-6
Oswego 3,030 ft., Mayes 4,230 ft., Woodford 4,360 ft., Misener 4,389 ft., Hunton 4,395 ft., drilling 4,616 ft.
Hall-Jordan 1 Swan.....SE NE NW 29-6-5
Drilling 2,690 ft.
Hall-Jordan 1 Whitehead.....W½ SE SW 36-10-3
Belle City 2,600 ft., show oil in sand 4,333-62 ft., drilling 4,578 ft.

Seminole County

G. S. Norville 1 Fleet.....SE cor. 14-5-6
9⅝-in. 154 ft.
Eagle 1 Mann.....SW NE NE 31-7-7
First report.

Stephens County

Skelly 4 Frensley.....NE NE 35-1s-5w
Viola 5,540 ft., drilling 5,701 ft.
H. J. Brown 1 Lowery.....NW SW NW 8-3s-5w
Drilling 450 ft.

Tillman County

Price 1 Crowe.....NW NW NE 24-2s-15w
Drilling 1,675 ft.
Stovall Drlg. 1-A Howell.....NW SE SE 13-1-17w
Drilling 555 ft.

Indiana Fields

(Continued from Page 54)

Posey County

McCummings et al 1 Ritter.....SW SW SE 9-8s-14w
T.D. 2,695 ft., rigging up standard tools to drill plug.

Starke County

R. B. Damblyer 1 Francois.....NE NE SW 5-32n-2w
Set 8-in. 152 ft., Devonian 156 ft., 6-in. 775 ft., drilling 780 ft.

Vanderburg County

T. W. Drake 1 Nurrenbern.....SE NE NE 6-7s-14w
T.D. 1,160 ft., 40-qt. shot 1,148-60 ft., pumped 40 bbl. oil and hole caved badly, will run liner.
R. A. Mitchell et al 1 Keck.....NE SW SW 6-7s-11w
Drilling 375 ft.
C. J. Williams et al 1 Strueh.....SW SW NW 6-7s-11w
Menard 1,632 ft., Waltersburg 1,708 ft., drilling 1,711 ft.

Vigo County

Sage & Farley.....S½ NE NW 24-11n-8w
Drilling 2,321 ft.

EASTERN KENTUCKY

ASHLAND, Ky., Apr. 7.—Completions of one oil well and three gas wells are reported in eastern Kentucky this week with several locations for new wells reported. One gas well is a high producer.

One deep drilling test, Cumberland Petroleum Co., is down 4,632 ft. in a gray-lime formation between Trenton and St. Peter sand in No. 46 on the L. C. Bailey tract in Magoffin County.

It is reported that Lyle et al are planning a deep test pointing toward St. Peter sand in Jackson County, but full details were not available. Local sources said the operators are from Winchester, Ky.

EASTERN KENTUCKY COMPLETIONS

Magoffin County: Grant Rice 7 Charles Helton, Burning Fork district, 2 bbl.
Knott County: Kentucky-West Virginia Gas 607 Isom Gibson, Jones Fork, 103,000 cu. ft. gas at 2,785 ft., T.D., shale.
Floyd County: Kentucky-West Virginia Gas 5286 Anderson C. Stratton, Mare Creek, 103,000 cu. ft. of gas, 2,690 ft. T.D. in shale, R.P. 165 lb.
Kentucky-West Virginia Gas 5287 Ben Smith, 1,245,000 cu. ft. gas, 1,936 ft. T.D. in Big lime, R.P. 245 lb.

EASTERN KENTUCKY DRILLING REPORT

Knott County

Inland Gas Corp. 219 Sylvania Cornette, Big Branch of Troublesome Creek, 1,800 ft., Salt sand.
Inland Gas Corp. 220 Hindman Settlement School tract, Smith Branch of Carr Creek, rig completed, idle.
Inland Gas Corp. 221 Virginia Coal Co., Balls Fork, 3,543 ft., slate and shells.
Kentucky-West Virginia Gas 528 Joseph Hall, cleaning out.
Kentucky-West Virginia Gas 5291 B. G. Dyer, Mill Creek, 1,768 ft., Maxon.
Kentucky-West Virginia Gas 5297 Jesse Bates, 50 ft., slate.
Kentucky-West Virginia Gas Joe King, Bates Branch, 90 ft., sand.
Kentucky-West Virginia Gas 5299 Richard Hall, Dick Hall branch of Right Beaver Creek, 725 ft., sand.
Kentucky-West Virginia Gas 5304 Benjamin Smith, building road.
Kentucky-West Virginia Gas 5288 David Martin, moving.

Pike County

Kentucky-West Virginia Gas 612 F. J. May, Island Creek, 827 ft., slate.
Kentucky-West Virginia Gas 5289 Green Thacker, lower Pompey Branch of Levisa Fork, 945 ft., sand.
Kentucky-West Virginia Gas 5294 Tandy Howell, 1,785 ft., slate.
Kentucky-West Virginia Gas 5293 Thomas Ford, Ford Branch, 1,674 ft.
Kentucky-West Virginia Gas 613 N. J. Boyd, road completed.
Kentucky-West Virginia Gas 5303 J. W. Vicars, building road.

Martin County

Kentucky-West Virginia Gas 5296 J. G. Carlisle, Cold Water Fork, 1,200 ft., slate.

Powell County

Adkins Brothers 3 E. C. Green et al, South Fork, 600 ft.
M. V. Wireman, Louis Townsend, South Fork No. 3, 500 ft.
Evans Oil & Gas 3 B. F. Creech, Millers Creek, 200 ft.

Magoffin County

Howard & Prather 1 Sarah Montgomery, 100 ft.

Laurel County

Globe Oil & Gas 1 Nat Sewell, 2,700 ft., lower Camp Nelson formation with Knox dolomite expected at 2,900 ft.

Johnson County

Inland Gas 222 C. F. Conley, near Paintsville, 364 ft., sand.

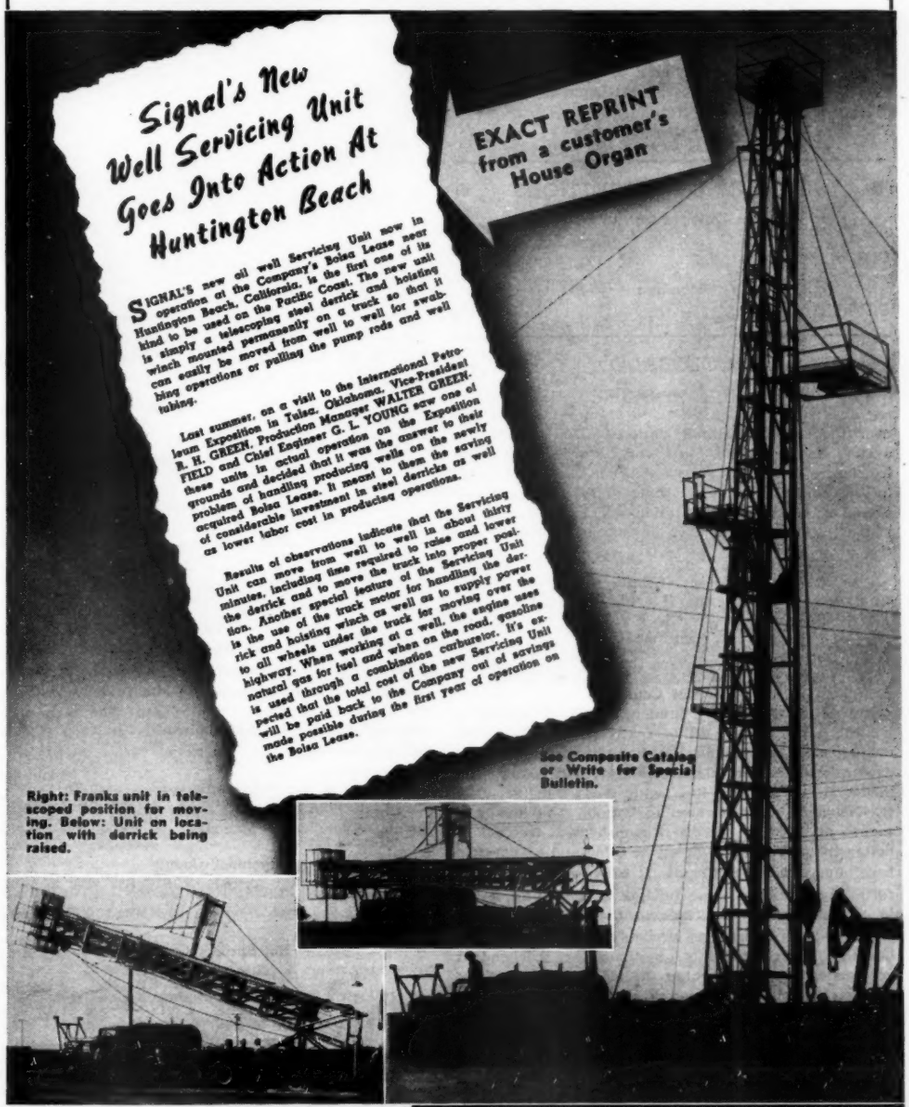
Lee County

Floyd Fitch 1 Sam Crabtree, Mount Olives, 600 ft.

Floyd County

Kentucky-West Virginia Gas 601 Crit Mitchell, Mud Creek, 1,677 ft., black lime.
Kentucky-West Virginia Gas 610 Elijah Akers, 1,345 ft., sand.
Kentucky-West Virginia Gas 611 M. A. Davidson, 1,133 ft., sand.
Kentucky-West Virginia Gas 5290 Martha Alley, Frazier Creek, 1,622 ft., sand.
Kentucky-West Virginia Gas 5295 James Harold, Head Cow Creek, 1,180 ft., sand.
Kentucky-West Virginia Gas 5300 Solomon, Branham Creek, rigging up.
Kentucky-West Virginia Gas 5301 James C. Jones, building road.

"... TOTAL COST OF UNIT WILL BE PAID BACK OUT OF SAVINGS IN OPERATION THE FIRST YEAR."


Signal's New Well Servicing Unit Goes Into Action At Huntington Beach
EXACT REPRINT from a customer's House Organ
SIGNAL'S new oil well Servicing Unit now in operation at the Company's Bolsa Lease near Huntington Beach, California, is the first one of its kind to be used on the Pacific Coast. The new unit is simply a telescoping steel derrick and hoisting winch mounted permanently on a truck so that it can easily be moved from well to well for swabbing operations or pulling the pump rods and well tubing.
Last summer, on a visit to the International Petroleum Exposition in Tulsa, Oklahoma, Vice-President R. H. GREEN, Production Manager WALTER GREENFIELD and Chief Engineer G. L. YOUNG saw one of these units in actual operation on the Exposition grounds and decided that it was the answer to their problem of handling producing wells on the newly acquired Bolsa Lease. It meant to them the saving of considerable investment in steel derricks as well as lower labor cost in producing operations.
Results of observations indicate that the Servicing Unit can move from well to well in about thirty minutes, including time required to raise and lower the derrick and to move the truck into proper position. Another special feature of the Servicing Unit is the use of the truck motor for handling the derrick and hoisting winch as well as to supply power to all wheels under the truck for moving over the highway. When working at a well, the engine uses natural gas for fuel and when on the road, gasoline is used through a combination carburetor. It's expected that the total cost of the new Servicing Unit will be paid back to the Company out of savings made possible during the first year of operation on the Bolsa Lease.
See Composite Catalog or Write for Special Bulletin.
Right: Franks unit in telescoped position for moving. Below: Unit on location with derrick being raised.

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Illinois Basin and Michigan: Glen L. Wigton, Box 26, Vincennes, Ind.
California: Hillman-Kelley, Inc., 2441 Hunter St., Los Angeles, Calif.

FRANKS MFG. CORP.
WELL SERVICING AND DRILLING UNITS
TULSA, OKLAHOMA

By

T. R. INGRAM

Madison Lime Show Found North of Cut Bank Field

DENVER, Colo., Apr. 7.—The Colorado Legislature passed a bill exempting filling and bulk stations from chain-store tax. Wildcat near Denver has noncommercial show of 50-gravity crude at 4,814 ft. Mountain Fuel Supply 7 Wilson, East Hiawatha, swabbed 200 bbl. a day in second Wasatch sand and is still testing.

Sinclair-Wyoming 18-A Wertz, Wertz field, was completed for 4,800 bbl. in the Tensleep, and Ohio 12 State, at Rock River, a slight extension of Dakota sand, pumped 250 bbl. Only completion in Lance Creek was Argo 16 Elliott for 600 bbl. Bids for federal royalty oil in Lance Creek were all above posted field price and readjustment of price structure for the field is in prospect as certain contracts are about to expire and Continental posts a 5-cent advance. Marvel Oil 6 Government, La Barge field, made 45 bbl. initial.

Cut Bank had one completion, Cobb 2 Tribal-187, for 135 bbl., which marks an extension in South Cut Bank ½ mile to west. Reagan wildcat northwest of Cut Bank has a show in the Madison and is testing.

SUMMARY OF COMPLETIONS

Wyoming

	No.	Bbl.	Footage
Oil wells	5	6,595	20,651

Montana

Oil wells	1	135	2,976

COLORADO

The long-standing controversy between the marketing companies in Colorado and state tax authorities over the status of filling stations leased out by the owners to individuals was settled when the state legislature passed H.B. 930 clarifying the term "store" in the collection of chain-store taxes. It specifically exempts filling and bulk stations from the tax. It was signed by Gov. Ralph Carr on March 31 and is now the law.

Boulder County

J. A. Warren 3 Maxwell.....NW NE NW 24-1n-71w
Drilling 1,420 ft.

El Paso County

F. F. Hintze 1 State.....CEL SE SE 16-11s-60w
S.D. 1,840 ft.

Jefferson County

Ruby Hill Oil & Gas 1 Braden, SE SE SE 24-4s-69w, wildcat immediately west of Denver, which has been drilling since the fall of 1928 with intermittent shutdowns, resumed recently at 4,460 ft., and is now bottomed at 4,814 ft. in lime with the 4¾-in. at 4,778 ft. Casing is being lowered to bottom. The lime was topped at 4,800 ft. and carries a show of free oil of better than 50 gravity, green in color and of paraffin base, and high in lubricants. It bails around a bailerful a day and is of same type as is frequently found in noncommercial quantities in the Hygiene. Driller identifies the horizon as probably the Timpas lime, but this interpretation is questioned by independent geologists. Doubt concerning the identifications of the several horizons penetrated has existed almost from the time the well spudded. The drillers say it was through the Hygiene at 1,930 ft., the sand carrying considerable gas. In 1935 a water well was drilled on the Henry Swan place a little more than ½ mile to the southwest. It had the top of the Foxhills at 1,817 ft. and second sand in that formation at 1,934 ft. However, there is believed to exist a fault between the two wells. The company drilling the Ruby Hill test has been under the same management since the operation first began.

La Plata County

E. B. Klem 1 Olbert.....NW SW 9-35n-12w
S.D. 4,050 ft., account weather.
Nick Spatter 1-X Bryce.....SW SW 31-33n-9w
Drilling 4,428 ft. in hard sand.

Larimer County

J. E. Carruthers 1 Hogsett.....NE SE NE 20-4n-69w
S.D. 280 ft. for casing.
E. P. Gallup 1 Hanson.....C SE NW 36-10n-71w
S.D. 312 ft., prepare to resume.

Las Animas County

Barney Oil 1 Dutto-Marchisio....NW NW 32-33n-62w
Drilling 1,218 ft.

Logan County

West Plains 1 Sheldon.....SE NW SW 3-10n-55w
S.D. 3,310 ft. (corrected depth), negotiating for rotary contract.

Moffat County

Mountain Fuel Supply 7 Wilson, East Hiawatha, swabbed at the rate of 200 bbl. a day, high-gravity oil, through 7-in. perforated at 2,257-2,341 ft., and is continuing to test.

Mountain Fuel Supply 7 Wilson.....
NE SW NW 23-12n-100w
Cemented 7-in. at 2,563 ft., perf. opposite second Wasatch sand, testing.
Mountain Fuel Supply 3 Musser.....
CNL NW SW 5-11n-97w
Drilling 4,327 ft.

Rio Blanco County

Texas Co. 6 Unit.....NW NE SE 27-3n-94w
Drilling 485 ft.

Routt County

Mid-Colorado Pet. 1 Omholt.....NE NE SE 29-4n-87w
T.D. 3,160 ft., testing Dakota shutoff.
Craig-Moore 1-X Erwin.....C SW NE 33-7n-85w
T.D. 2,675 ft., fishing for bit.

WYOMING

Big Horn County

Ohio Oil Co. has made location for 2-A Hoskins, Byron field, west offset to 1-A Hoskins, completed in 1935 in the Tensleep at 5,214 ft., total depth, for 400 bbl. a day on the pump.

Ohio 2-A Hoskins.....SE SE SE 15-56n-97w
Location, first report.
McDonald & Curtis 1 Orchard.... SE NW 24-51n-93w
S.D. 1,235 ft., weather.
N. B. Ketchersid 1 Mann....SW SW SW 11-55n-97w
T.D. 625 ft., preparing to run 10-in.

Carbon County

Sinclair-Wyoming 18-A Wertz, SE SE NW 7-26n-89w, an inside well, Wertz field, flowed 4,800 bbl. initial through the tubing first 24 hours at 6,017 ft., total depth, from the Tensleep, topped at 5,717 ft. The 7-in. is at 5,719 ft.

Ohio Oil 12 State, C W½ NE 34-20n-78w, an outside well on northwest side Rock Creek, proved to be a good well in the Dakota and extended the productive area ¼ mile. It made 250 bbl. first 24 hours on the pump at 3,721 ft., total depth. The 5-in. is at 3,601 ft. Top of second Muddy was at 3,600 ft., and Dakota at 3,674 ft.

Ohio 13 State .....NW NE 34-20n-78w
Drilling 367 ft., cemented 9⅝-in. at 142 ft.
Sinclair-Wyoming 22 Wertz.....SE SE SE 1-26n-90w
Drilling 457 ft., cemented 13⅜-in. 405 ft., 425 sacks.
Sinclair-Wyoming 5-C Mahoney...C NW SE 34-26n-88w
Drilling 2,751 ft.

Fremont County

Indian Oil, agent, 2 Tribal.....SW SW NW 23-6n-2w
Drilling 405 ft.
V. M. Kirk 2 Tribal.....NW SE NE 22-6n-2w
Drilling 134 ft.

Hot Springs County

Shot, Sheperson & Kitteson 1 Daly-State.....
SW SW NW 16-43n-92w
Rigging cable tools, first report, Kirby Creek.
J. W. Bales 1 Government...CWL NW SE 21-42n-90w
T.D. 972 ft., P.B. to 900 ft., redrilling.

Natrona County

Investors Oil 31 Government..NW NW SW 2-33n-89w
Landed 7-in. on bottom at 2,338 ft.
K. S. Albert 1 Young.....NE SE 25-32n-82w
Drilling 310 ft.
Summitt Oil 2 Government...NW NE NE 21-33n-80w
T.D. 935 ft., running 8¼-in. to bottom.

Niobrara County

Crude-oil prices in Lance Creek, which have been posted steadily at 77 cents for several years, received several jolts the past week with some more in the offing. In response to a call for bids for royalty oil accruing to the federal Government, the Department of the Interior received bids on March 17 on two items and on March 31 on one item which marked advances over posted prices. Item No. 1 covered federal royalty oil from the Elliott and Ford leases operated by the Argo Oil Corp. Successful bid was by the Perry Petroleum Co. which operates a refinery near Denver. The bid was $1.031 per barrel, 26.1 cents above posted price at the time, and 1.1 cents above the minimum set in the call, based on Mid-Continent prices for 40-gravity crude.

Item 2, covering the H. & M., Ford, and Marlene leases operated by the Minnelusa Oil Corp., the Novick lease operated by A. B. Cobb & Co., and the Lamb lease, operated by the Nebraska-Wyoming Oil Co. (C. L. Price et al) went to the Manville Crude Oil Co. (Ward & Jennewine) of Douglas. The bid was equal to $1.032 per barrel. The third item includes leases operated by the Ohio Oil Co. and the Continental-Buck Creek Oil companies. The amount of the bid has not yet been received, but it was above the minimum of $1.02. It went to the Cilebur Corp., Delaware firm, which qualified to do business in Colorado on May 16, 1938. Officers and directors are not disclosed, but Walter E. Schwed, a Denver attorney, said to be identified with the Bay Petroleum Corp., is named as agent. The Bay company has a refinery at Denver.

Coincidental with these developments, Continental posted an increase of 5 cents a barrel, or 82 cents, effective April 1. The government royalty-oil contracts run for 3 years from April 1, 1941.

Lance Creek crude prices were based on a contract made with the Stanolind Pipe Line Co. several years ago, which allowed for a differential under Mid-Continent prices in order to induce the company to purchase oil from the field. The field then was new and no extensive markets had been established. Stanolind was motivated by the necessity of revamping its trunk line from Teapot dome to Freeman, Mo., at a cost of several million dollars. This contract, which covered only the purchase of oil from the Sundance horizon, expires July 1, 1941. Negotiations for renewal have been pending, but it is understood no agreement has been reached.

Large production has since been developed in the Leo horizon, and the Stanolind contracted for additional crude from that pay, and the Utah Oil Refining Co. built a trunk line from Lance Creek to its refinery at Salt Lake City, Utah. This contract still has several years to run, but it provides that on July 1, 1941, the price automatically will advance from 77 to 90 cents a barrel. In the interim, the Department of the Interior sought a price of $1.14 for the federal royalty oil. After numerous conferences and hearings, it was reported that a compromise had been reached, but the details have not been made public.

Another development indicating the trend is a report that a well-known independent refiner has tendered the unit an offer of $1.04 for Sundance crude upon the expiration of the Stanolind contract. Stanolind is now moving crude from the Lost Soldier district through the trunk line to Missouri following the completion of a connection with the Sinclair-Wyoming line from the field to Casper.

Lance Creek had one completion and two new operations. Argo Oil 16 Elliott, NW SE NW 5-35n-65w, an inside well, flowed 25 bbl. an hour through the perforated 7-in. at 5,540 ft., total depth. The casing was set at 5,534 ft. and perforated with 70 holes opposite the Leo sand at 5,490-5,528 ft.

Ohio 4 Richards & Comstock.....NE SW 32-36n-65w
Location, first report.
Ohio 20 Putnam.....NW SW 33-36n-65w
Location, first report.
Ohio 7 Converse Sheep.....C NW SE 32-36n-65w
Drilling 5,389 ft.
Continental 1 Rohiff.....CSL SE NW 32-36n-65w
Drilling 5,107 ft., first Converse sand 4,612-40 ft. showed water.
Continental 2-A Schuricht.....C SE NE 6-35n-65w
T.D. 5,460 ft., cemented 4½-in. 5,460 ft., testing.
Ohio 19 Putnam.....CWL NW 4-35n-65w
Drilling 5,419 ft., cemented 7-in. 5,337 ft., top Leo 5,313 ft.

Park County

Enalpac 3 Pauline O.P.C.-1.....SW SE SE 5-51n-100w
Drilling 267 ft.
Stanolind 6 Rosenberg..... NW NW NW 25-58n-98w
T.D. 2,747 ft., rigging rotary, will set whipstock at 2,667 ft.

Sublette County

Marvel Oil 6 Government, CEL SE SE 28-27n-113w, La Barge field, was completed in the first Wasatch sand at 1,155 ft. for 45 bbl. a day on the pump. The 7-in. is at 1,125 ft.

North La Barge Oil 7 Govt. ....C SE NE 28-27n-113w
Location.
Charles Lackey 1 Government NE SE SW 33-27n-113w
Drilling 1,394 ft.

Sweetwater County

Sinclair-Wyoming 95-A, SW NW NW 11-26n-90w, Lost Soldier field, flowed 900 bbl. first 24 hours at 4,218 ft., total depth, from the Tensleep, top at 3,829 ft. The 7-in. is at 3,828 ft.

Rocky Mountain Drilling 1 State, wildcat, North Baxter basin, which shut down for orders at 3,974 ft. last January after plugging back and testing the Dakota, has resumed. Upper Sundance and Morrison were dry.

Mountain Fuel Supply 1 State SW SW SW 36-20n-104w
Drilling 4,568 ft. in basal Sundance.
Sinclair-Wyoming 100-A.....NE NE NE 10-26n-90w
Location, first report, Lost Soldier field.
Vermillion Oil 1 Government...SW NE NE 6-12n-99w
Location.
Sinclair-Wyoming 96-A.....NE SE NE 10-26n-90w
Drilling 3,223 ft.

Uinta County

Stove Creek Oil 2 Government C SW NW 26-14n-119w
T.D. 1,352 ft., fishing.

Weston County

Lem Johnston 1.....NW SW 24-44n-63w
Sidetracking casing below 3,300 ft., Mush Creek district.
John Brorphy 1 Hansen.....NW NE NW 13-44n-63w
T.D. 2,215 ft., running 5½-in., to carry to top of sand.
Updike Bros. 4.....CWL SW SW 30-46n-63w
Cemented 8¼-in. at 585 ft.
Riggs Oil 4 State.....CNL NE SE 16-46n-64w
Drilled into Dakota at 3,465 ft. and found water, will drill deeper.
Osage Trust 1 fee.....NE SW SE 10-46n-63w
Cored first Leo at 2,155-2,220 ft. and failed to find production, will test lower Leo and Bell sands.
Al Jones 15.....NW NW NE 21-46n-63w
Drilling below 150 ft.

MONTANA

Oil in storage, all Montana fields, at end of February was 1,144,208 bbl., an increase during the month of 68,629 bbl., according to monthly summary of the state Oil Conservation Board. Production was 558,690 bbl., a decrease of 38,266 bbl. as compared with January. Of total, 438,382 bbl. were refined in Montana, 1,857 bbl. shipped to Canada, and 5,284 bbl. shipped to other states.

Glacier County

The only completion in Cut Bank was A. B. Cobb 2 Tribal-187, SW SW NW 19-32n-5w, which marks an extension westward of nearly ½ mile in the southern part of the field. It was drilled to the top of the sand last December and shut down until sale of adjoining tribal leases took place. He acquired both west and south offset tracts. Fifteen wells are scheduled to be drilled on the tracts sold at auction to the west, south, and southwest of the Cobb well this coming summer under the terms of the leases. The Cobb well swabbed 135 bbl. per 8-hour day at 2,976 ft., total depth. The Sunburst at 2,897-2,910 ft., was dry and the 7-in. was set at 2,922 ft. The Cut Bank was at 2,916-75 ft., with a shale break at 2,922-35 ft. The main pay was at 2,935-75 ft., about 30 ft. thicker than the average for the lower sand in other parts of the field.

The Ed Reagan wildcat, 1 Tribal-194, on the Reagan structure, northwest of the Cut Bank field, attracted attention when cores in the Madison lime at 3,825-55 ft. showed oil and gas saturation. It is testing.

R. C. Jeffries 2 Exchange Oil.....C SE NE 33-35n-6w
Spudded, first report.
Santa Rita 13 Tribal.....CSL NE SW 10-35n-6w
Rigging, first report.
A. E. Crumley 3 Allottee-113...NW NW SE 31-33n-5w
Cemented 10¾-in. 504 ft., top Colorado 465 ft.
Texas 2 Willis.....SW SW SW 20-32n-5w
Building rig.
Santa Rita 3 Jordan.....C SE NE 7-32n-5w
Drilling 1,900 ft., top Colorado 575 ft., 10¾ in. 581 ft.
Ed Reagan 1 Tribal-194.....CEL SE NE 22-37n-7w
Testing show in Madison at 3,825-55 ft.

Hill County

Cobb-Yale 1 Government.....C SW NE 19-37n-15e
Spudded and S.D., moving in rotary, Signal Butte.
Edwards-Callison 1 Hanson...CWL SW NW 25-35n-15e
Location, will go to Eagle sand at 1,200 ft. in search of municipal gas supply for Havre.

Teton County

R. C. Tarrant is moving in for another test in the Pendroy district in his 1 Kellogg. Location is a south offset to Zodiac Oil Co. 1 Kellogg which was drilled in 1938-39 to the Madison at 2,835-41 ft. where it had a show of oil with water in a 2-in. hole, and a mile northwest of Tarrant 1 Hoeschen, NE SE Section 34, which was a 10-bbl. well in the Madison at 2,212-83 ft. and plugged back and completed as a gas well in the basal Colorado. The block of 6,000 acres under the Helland Research Corp. seismograph survey has been acquired by George Coffee, who contracted with Tarrant for the test.

R. C. Tarrant 1 Kellogg .....SE NW NE 33-27n-5w
Moving in, first report.

Toole County

Montana Gas 1-A Nelson, CNL SE NE 12-35n-1e, Bow and Arrow district, reported abandoned last week at 2,220 ft., is a correction as to depth. It had water in the contact at 2,235 ft., which also is the total depth.

Big West 10 Allen-17.....SE SE SW 31-35n-1w
Drilling 925 ft., first report.
Twinfields Oil 3 Government..CNL NE NE 29-35n-3w
Drilling 1,440 ft., cemented 8¼-in. 1,150 ft.

Colonel Kevin Oil 9 Government C NE NW 27-35n-3w
Drilling 825 ft.
R. G. Parrant 1 Holbrook.....C NW NE 2-36n-3w
Standing 1,980 ft.
Ohio 6 Howling.....SW SW NW 10-35n-2w
T.D. 1,671 ft., contact 1,631-78 ft., breaks at 1,657-60 ft. and 1,563-68 ft., 120 ft. fluid in hole, acid, 1,000 gal., testing.
Ohio 7 Howling.....NE NE SE 10-35n-2w
Spudded.
Dunkirk Adventure 1 McKechnie NW SW SE 2-31n-1w
Drilling 465 ft.
Kevin Oil 4 Leach.....C SE NE 31-35n-3w
T.D. 1,772 ft., 800 ft. fluid in hole, testing.
Pfabe & Engleking 13 Govt. ...CNL SE SE 19-35n-2w
T.D. 1,518 ft., acidized 500 gal., no results, will shoot and acidize again.

NORTHWEST NEW MEXICO

Bernalillo County

David H. Boyd 1 Wright..... 11-10n-5e
Drilling 187 ft.

Sandoval County

Sieman & Boyd 1 Armijo..... SE SW 1-12n-3w
T.D. 715 ft., show oil in sand topped at 711 ft., will run 8-in., location 6 mi. SE of Continental Oil Co. dry hole at 5,962 ft., in 2-13n-4w, drilled in 1935.

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By
GEORGE WEBER

Gas-Condensate Production Opened at South El Dorado

SHREVEPORT, La., Apr. 7.—New shows of oil production in the Wilcox zone of North Louisiana and a gas-condensate field discovery and extension in Arkansas highlighted an active week in the tri-state district. In addition, several wildcats of importance were staked or spudded last week, indicating continuation of the current revival in new field development in the district.

La Salle Parish continued the center of the Wilcox activity, now extending from Grant and Winn parishes eastward across the Mississippi River into Mississippi. During the past week Placid Oil Co. completed 1 Doughty, 32-9-2e, for an initial production of 8 bbl. hourly through a 12/64-in. choke. The well is making only 3 per cent salt water and showed 300 lb. on the tubing and 700 lb. on the casing at initial gage. The gas-oil ratio is estimated at 30 cu. ft. per barrel. Crude gravity averages 30.3° A.P.I.

The 1 Doughty is located just south of the town of Little Creek, approximately 1 mile southwest of the same operator's 1-B Goodpine, a wildcat which is making about 42 bbl. of fluid daily, consisting of 50 per cent 37.7-gravity oil and 50 per cent salt water. The 1 Doughty ran somewhat higher than the 1-B Goodpine on the Sparta and Wilcox formations, but they are producing from different sands in the Wilcox. The Doughty is perforated in sand about 630 ft. below the top of the Wilcox and the Goodpine is making lighter oil from a horizon 1,750 ft. in the Wilcox. The Goodpine well lies about 3 miles southwest of Placid 1 Tremont which recently discovered the first commercial oil in the Summerville field.

New Wells May Extend Summerville

The field discovery for gas, Petersen Petroleum Corp. 1 Tremont, lies about 3 miles due east of 1-B Goodpine. Summerville oil averages 28.1° gravity which differs from the lighter crude produced in Placid 1 Doughty, although the two wells are completed in zones relatively the same depth in the Wilcox formation. While the recent oil discoveries in the Goodpine and Doughty wells may mark extensions to the Summerville field to the east, such cannot yet be assumed until tests are drilled in the intervening area. Until its relation to Summerville is proven, the new area will be designated Little Creek.

Possibility of still another Wilcox pool in La Salle Parish is seen in the tests of the J. D. Critchett et al 1 Jones, located in 41-7n-3e, near the shore of Catahoula Lake in the southern part of the parish. The test was reported showing oil several days ago, but operators stuck 7-in. casing and had to set a short string before testing. Five and one-half inch casing was set and perforated at 3,622-27 ft., 1,060 ft. below the top of the Wilcox. The well was swabbed for 3 hours and began flowing an estimated 10 bbl. oil and much salt water through a ¼-in. choke with casing pressure at 250 lb. It is reported that attempts will be made to shut off the salt-water flow. Salt-water trouble is characteristic of completion attempts in the Wilcox sands of North Louisiana. The sands generally are thin with little interval between gas-oil and oil-water contacts and Olla, Jena and Summerville, the three oil fields recently discovered in the parish, showed similar characteristics in this respect.

The third area of current interest in the Wilcox play is located 4 miles north of the Jena field, in 25-8-2e, where the Big West Drilling Co. 1 Whatley recently blew out and caught fire. The wildcat made an estimated 15,000,000 cu. ft. of gas through perforations shot at 3,165-68 ft. Last week the fire was extinguished and the test shut in at total depth of 3,927 ft. Although the gas flow was devoid of any indication of oil, the horizon perforated showed oil when cored, and an additional oil show was reported in the overlying Sparta formation.

SUMMARY OF COMPLETIONS

	No.	Bbl.	Footage
Arkansas			
Oil wells: Smackover	2	40	5,331
Urbana	1	95	3,208
Gas wells: McKamie	2	†998	19,330
Dry holes: Nick Springs	1	.....	3,850
Stephens	1	.....	3,486
Urbana	1	.....	3,547
Wildcats	1	.....	6,505
Total	9	.....	45,257
North Louisiana			
Oil wells: Caddo	8	220	12,389
Little Creek	1	186	3,615
Wildcats	1	5	1,317
Gas wells: Joaquin	1	*104	4,905
Dry holes: Caddo	1	.....	2,469
Converse	1	.....	2,010
Sligo	2	.....	6,350
South Urania	1	.....	1,686
Wildcats	1	.....	2,310
Total	17	.....	32,146
East Texas Border			
Gas wells: Joaquin	1	*52	4,964

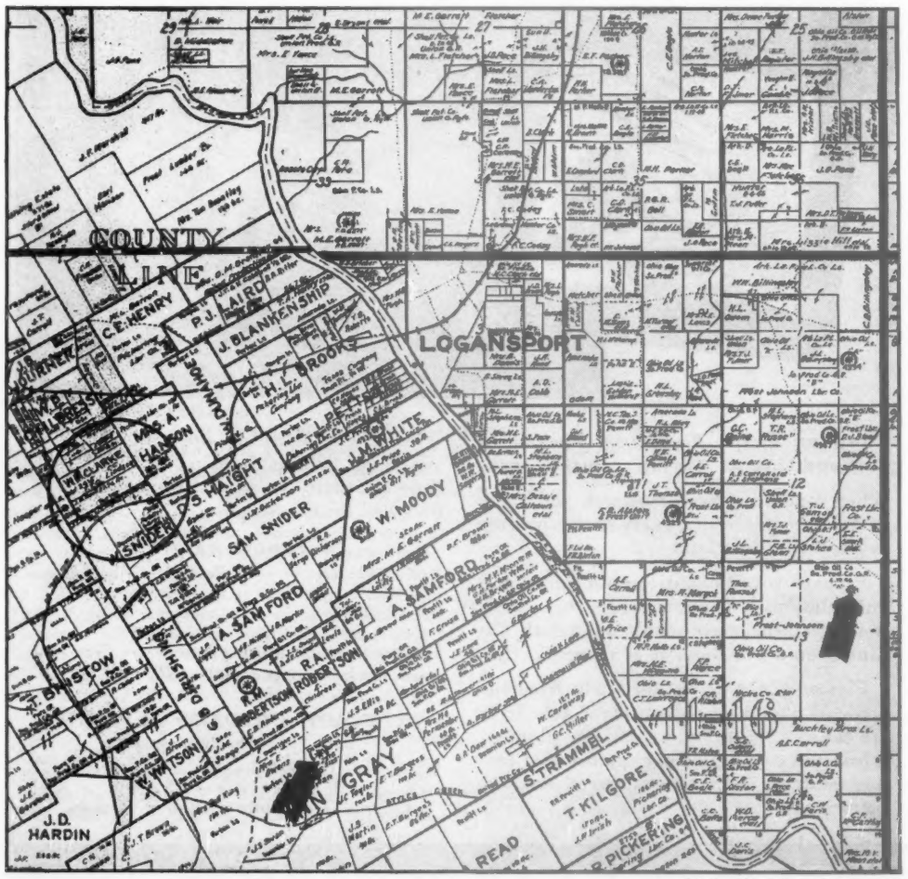
*Million cu. ft.
†Also 8,000,000 cu. ft. gas.

South Urania Test Abandoned

The attempt to extend small production in the top of the Wilcox south of the Urania field in 25-9n-1e failed when Lion Oil Refining Co. abandoned 2 Goodpine at total depth of 1,686 ft. The current test is located less than ½ mile northeast of the operator's 1 Goodpine, which recently came in pumping about 30 bbl. of oil daily. The second attempt showed oil on a drill-stem test at 1,620-35 ft., but tested only salt water upon further testing at 1,620-44 ft.

RED RIVER PARISH.—A wildcat in 31-11-9, Red River Parish, located southeast of the Bull Bayou field was completed last week for a small pumper. The Thornton & La Croix 1 Prudential Life Insurance Co. has been testing oil in the Nacatoch 1,224-51 ft. for several weeks. After shooting the section with nitroglycerin and acidizing, the test was completed last week pumping 5 bbl. of oil daily.

GREENWOOD TEST.—The Delta Drilling Co. 1 Thigpen-Herold, closely watched test in the Greenwood gas field of western Caddo Parish, last week tested gas at 2,593-2,620 ft. The well, located ½ mile northeast of discovery, ran lower on structure and shows of oil in the shallow Nacatoch sand led to the belief that oil production existed on the flanks of the



Globe Map Co., Shreveport

The Joaquin field of Shelby County, Texas, and De Soto Parish, Louisiana, has seen important extensions in recent months, with the drilling of six gas wells by Southern Production Co., two by Union Producing Co. and one by Paul Pewitt. The field, formerly proven only in the vicinity of the Portex Oil Co. leases, circled to the left, has been proven productive of gas as indicated by the circled wells and arrows. The Hunter Co. 1 Parker, completed in 1938 is now considered on the same structure. The 1 Parker is located in 26-12n-16w

field. The gas sand was topped at 2,603 ft. and the body was estimated to be 20 ft. in thickness.

Upon coring ahead, operators recovered 2 ft. of porous sand with a stain and odor of oil from a partial 5-ft. recovery between 2,623-41 ft. This oil sand was estimated topped at 2,639 ft. A second core taken at 2,641-59 ft. showed recovery of only 2 ft. of shale, but the top of the core drilled like oil sand, according to operators. The test was carried to a total depth of 2,981 ft., and 5½-in. casing was set at 2,972 ft. The perforations were shot above what is believed to be the oil section in the test.

LISBON.—Magnolia Petroleum Co. abandoned 2 Fowler in the Lisbon field last week, after deepening it from the Pettit producing level into the top of the Travis Peak formation, where oil was discovered last year in a deepened test located 3½ miles to the west. The same company has gone back into 3 English, located in 31-21-5, 1½ miles northwest of the Fowler failure to again test oil possibilities in the top of the Travis Peak formation.

On the eastern edge of Pettit production at Lisbon, and 2½ miles southeast of the Caruthers 1 Burgess-Simmons unit, Big West Drilling Co. is below 5,900 ft. in 1 Patton, a deep test which will test the possibilities for oil or gas-condensate production in the Cotton Valley and possibly the Smackover formations. The Caruthers well discovered new gas-condensate production in the Cotton Valley formation and showed oil in other horizons below the Pettit lime of lower Glen Rose age.

NORTH LOUISIANA COMPLETIONS

Sligo—Bossier Parish

Triangle Drilling 3 Thigpen-Herold ..... NW SW SE 13-17-12
T.D. 3,165 ft., abandoned, dry.
Triangle Drilling 5 Thigpen-Herold .... SE SE 13-17-12
T.D. 3,185 ft., abandoned, dry.
Union Producing 1 Jeter .....E½ NE NE 23-17-12
Old well drilled deeper, old T.D. 4,272 ft., abandoned, did not deepen.

Caddo—Caddo Parish

C. M. Bagley 2 Ober .....SW SE NW 1-20-16
Pumped 75 bbl., T.D. 1,550 ft., 6⅝-in. casing 1,351 ft., 3,000 gal. acid.
Davis & Hart 4-B Muslow .....SW SW NE 32-21-15
Pumped 30 bbl., T.D. 1,533 ft., 7-in. casing 1,380 ft., 4,000 gal. acid.
L. L. Lanier, Tr. 2 Spell .....NW NE SE 12-20-16
Pumped 25 bbl., T.D. 1,563 ft., 7-in. casing 1,408 ft., 4,000 gal. acid.
Magnolia 15 Herndon .....N½ NW 22-21-15
Pumped 5 bbl., T.D. 1,520 ft., 6⅝-in. casing 1,440 ft., 3,000 gal. acid.
P. D. & E. Oil 1 Burton .....NW SE NW 36-21-16
Pumped 20 bbl., T.D. 1,548 ft., 7-in. casing 1,510 ft., 3,000 gal. acid.
S. Reele 1 Goodwin .....NW SW NW 33-21-15
Pumped 25 bbl., T.D. 1,547 ft., 6⅝-in. casing 1,397 ft., 4,000 gal. acid.
N. S. Rothakis 1 Wilkinson .....NE NW SE 33-22-16
T.D. 2,469 ft., dry.
Smith & Hines 1 Gloyd .....SW SW NE 18-20-15
Pumped 25 bbl., T.D. 1,574 ft., 7-in. casing 1,335 ft., 4,000 gal. acid.
Weaver-Perry Oil 4 Pardue ....SW NE NW 33-21-15
Pumped 15 bbl., T.D. 1,554 ft., 7-in. casing 1,392 ft., 4,000 gal. acid.

Lisbon—Claiborne Parish

Magnolia 2 Fowler .....SW SE 32-21-4
Old well drilled deeper, old T.D. 5,218 ft., T.D. 5,455 ft., salt water.

Wildcat—Concordia Parish

K. Hughes 1 Nelson .....SE NW SE 34-9-10e
Dry, T.D. 2,310 ft.

Joaquin—De Soto Parish

Southern Prod. Co. 1 Frost Lumber SE NW NE 13-11-16
104,000,000 cu. ft. gas, open-flow potential, T.D. 4,905 ft., 7-in. casing 4,904 ft., perf. 4,832-40 ft., 4,860-80 ft. and 4,886-99 ft.

South Urania—La Salle Parish

Lion Oil Ref. Co. 2 Goodpine ....NW SW SE 25-9-1e
T.D. 1,686 ft., salt water.

Little Creek—La Salle Parish

Placid 1 Doughty .....NE SW 32-9-2e
192 bbl., ⅞-in. choke, 3 per cent salt water, T.P. 300 lb., C.P. 700 lb., T.D. 3,615 ft., 7-in. casing 3,576 ft., perf. 2,384-2,400 ft., Wilcox sand.

Wildcat—Red River Parish

Thornton & La Croix 1 Prudential Life ..... SW SW NW 31-11-9
Pumped 5 bbl., T.D. 1,317 ft., 5½-in. casing 1,195 ft., Nacatoch sand.

Converse—Sabine Parish

J. D. Haynes 4 Frost .....NW SE 17-9-13
T.D. 2,010 ft., dry.

NORTH LOUISIANA DRILLING REPORT

Bossier Parish

R. L. Reese 1-A Bellevue Land Co. SW NE SW 27-20-11
T.D. 3,007 ft., pumped salt water, no oil, 5½-in. casing 2,910 ft.

De Soto Parish

Schubert Oil 1 Scott .....SE NW SE 29-14-13
Rigging up.
J. E. Stack et al 1 Cook .....NW NE 32-13-14
T.D. 3,000 ft., arranging to set 5½-in. casing.
C. H. Neighbors 1 Bufkin .....NE SE NW 11-10-11
First report.

Franklin Parish

J. M. Rush et al 1 Moore .....NW NW NE 13-11-6e
First report.

Grant Parish

Inabinett & Pipes 2 Erwin .....NE NE SE 9-9n-1e
10-in. casing 102 ft., top Wilcox 1,540 ft., S.D., salt-water sand 1,541 ft.

La Salle Parish

Big West 1 Whatley .....NE NE 25-8-2e
T.D. 3,927 ft., extinguished fire, shut in, T.D. 3,927 ft.
J. D. Critchett et al 1 Jones ..... NW NW 41-7-3e
T.D. 3,963 ft., 5½-in. casing 3,690 ft., perf. 3,622-27 ft., swabbed in flowing est. 10 bbl. oil, much salt water, C.P. 250 lb., Wilcox sand.
M. L. Meredith 1 Grey .....NE NE 36-8-2e
Rig.
Placid 1-B Goodpine .....NE NW 33-9-2e
T.D. 4,069 ft., 5-in. casing 3,980 ft., perf. 3,576-81 ft., 42 bbl., 50 per cent oil, flow valves.

Lincoln Parish

Big West 1 Patton est. .....E½ W½ SE 7-20-4w
Drilling sandy shale 5,892 ft.
Herman Brown 1 Ark. La. Gas Co. ....SW NE 11-17-4
Drilling hard sand 9,257 ft.

Morehouse Parish

Union Prod. Co. 1 E. M. White, 3,200 ft. W, 2,400 ft. S, NW cor. T. 20n, R. 6e, in irregular Sec. 37, first report.

Sabine Parish

Plummer & McDaniel 1 Phares....NW NW SW 4-5-12
Drilling limy shale 2,556 ft.

Union Parish

Louark 1 H. H. Finley et al .....NE SW 10-20-1w
First report.

ARKANSAS

New gas-condensate production was discovered in the South El Dorado field of Union County when H. C. Murphy 1-C Cates was perforated at 5,504-08 ft. and swabbed in making an estimated 10 bbl. of 55-gravity condensate and 500,000 cu. ft. of gas through a ⅛-in. choke. Tubing pressure was gaged at 600 lb., and casing pressure at 1,775 lb. After the well cleaned, tubing pressure rose to 1,775 lb., and casing pressure to 2,100 lb. The deep test was drilled to 7,820 ft., over 100 ft. below the top of the Smackover lime formation. Horizons showing oil possibilities deep in the Cotton Valley formation had previously failed to produce commercially, and the test was plugged back to the present producing horizon, near the top of the Cotton Valley. At latest reports the well was shut in.

DORCHEAT EXTENSION.—The Dorcheat field of Columbia County was extended eastward last week by McAlester Fuel Co. 1 B. G. Barton, located ½ mile east of production. The McAlester well is not yet completed, but porous oolitic lime with a gas-condensate odor was encountered at 8,887 ft. and 5½-in. casing has been set at 8,959 ft. Of further interest at Dorcheat is the spudding of the McAlester Fuel Co. 1 Franks, in 16-18-21, 3 miles east, southeast of production. The area east of present production at Dorcheat is highly regarded, and the contours on the Smackover lime as revealed by wells already drilled indicate that the top of the structure lies east of present development.

McKAMIE COMPLETIONS.—Atlantic Refining Co. completed two good gas-condensate producers in the McKamie field of Lafayette County last week, extending production on the south. The 3 Bodcaw was drilled to a total depth of 9,980 ft. in an effort to determine whether or not a vertical water drive existed under the lease, and to explore the deeper Smackover. No further production porosity was encountered, nor was water found, leading to the conclusion that if a water drive exists in the field it must be lateral to the area now developed.

WILDCAT FAILURES.—Another deep wildcat failure was marked up last week, as the Louark Production Co. 1 Hedrick, in Miller County, was abandoned at 6,505 ft. In the Stephens area of Columbia County, the R. H. Crow et al 1 D. M. Green was also abandoned after finding salt water in the Smart sand at 3,432-57 ft. The test was drilled in the area after a previous test, 1 Smart, encountered oil shows in the Travis Peak horizon. The 1 Smart is now shut in, but when opened will head about 5 bbl. of oil and 50 bbl. salt water from the sand.

NEW TESTS.—Two important wildcats were begun last week. In Columbia County, Phillips Petroleum Co. is moving in on 1 Warnock, located 2 miles north of the Magnolia field and 1¼ miles south of a deep wildcat abandoned by Standard Oil Co. of Louisiana, now Louark Production Co. In Union County, Crescent Drilling Co. is rigging up on 1 Burns, located 3 miles east of the Schuler field.

ARKANSAS COMPLETIONS

McKamie—Lafayette County

Atlantic 3 Bodcaw ..... NE SE 29-17-23
326 bbl., ¼-in. choke, T.P. and C.P. 2,900 lb., T.D. 9,979 ft., P.B., set 5½-in. casing 9,370 ft., perf. 9,148-9,200 ft., gas-condensate, Smackover lime.
Atlantic 4 Bodcaw ..... SW SW 28-17-23
672 bbl., 18/64-in. choke, T.P. 2,400 lb., C.P. 2,850 lb., T.D. 9,350 ft., 5½-in. casing 9,342 ft., perf. 9,254-90 ft., gas-condenate, Smackover lime.

Stephens—Columbia County

R. H. Crow, Tr. 1 D. M. Green .....NW SE 11-15-20
T.D. 3,486 ft., salt water in sand 3,432-57 ft.

Wildcat—Miller County

Louark 1 E. J. Hedrick et al .....SE NE 27-19s-27w
T.D. 6,505 ft., dry.

Nick Springs—Union County

Lion Oil 1 E. G. Dunbar .....NE NW SW 31-17-14
T.D. 3,850 ft., dry.

Smackover—Union County

J. D. Reynolds 1 Laney heirs .... SE NE NW 8-16-16
Pumped 50 bbl., 20 per cent oil, T.D. 2,696 ft., 5½-in. casing 2,696 ft.
Sam M. Richardson 3-B Goodwin SE SE SW 32-15-15
Pumped 100 bbl., 30 per cent oil, T.D. 2,645 ft., 7-in. casing 2,645 ft., perf. 2,530-45 ft.

Urbana—Union County

Marine Oil 1 M. D. Ballard .....NE SW NW 10-18-13
T.D. 3,547 ft., salt water.
McCresien Oil 5 J. C. Parker .. SE NW SE 3-18-13
120 bbl., 22 per cent salt water, 10/64-in. choke, T.P. 650 lb., C.P. 950 lb., 5½-in. casing 3,205 ft., T.D. 3,208 ft.

ARKANSAS DRILLING REPORT

Clark County

Christman, Coker & Grieves 1 Sparkman ..... NW NE NE 11-11-20
T.D. 583 ft., S.D., report show heavy oil.
Coker, Christman & Grieves 1 Williams ..... NE NE NE 7-11-20
Rigging up.

Columbia County

Crow Drilling 1 J. W. Smart ..... SW SW 12-15-20
When open, flows 5 bbl. oil and 50 bbl. salt water, heading, T.D. 6,050 ft.
McAlester Fuel 1 Franks .....SE SE 16-18-21
Rigging up.

Faulkner County

Cato Oil 1 R. R. Harrell .....SE SW 35-4n-12w
S.D. 3,525 ft.

Miller County

K. E. Jennings and J. J. Oil Corp. 1 H. T. Wood ..... NE NE NE 33-18-28
Old well to be drilled deeper, old T.D. 4,574 ft., moving in rig.

Ouachita County

Jack Carnes 1 Rath & Cartier, Inc. ....N½ NE 2-14-18
First report.

Prairie County

Alvin E. Stark 1 Fidelity Mutual . NE NE SW 16-2n-6w
S.D. 840 ft.

Union County

C. H. Murphy 1-C Cates .....NW SW 33-18-15
(Deep El Dorado test), T.D. 7,820 ft., reperf. casing 5,504-08 ft., swabbed in, flowing est. 10 bbl. per hour and 500,000 cu. ft. gas, T.P. 1,775 lb., C.P. 2,100 lb., gas-condensate.
Crescent Drilling Co. 1 Burns .....NE SW 13-18-17
First report.

EAST TEXAS BORDER

Several prospective wildcats in the east border counties of Texas are attracting attention. They are scheduled for Panola, Harrison and Shelby counties. At Joaquin, Shelby County, Texas Co. has tested gas in the Travis Peak formation, below the regular gas horizon in the lower Glen Rose.

EAST TEXAS BORDER COMPLETIONS

Joaquin—Shelby County

Southern Production Co. 1 E. B. Anderson, R. M. Robertson Sur., 52,000,000 cu. ft. gas, open-flow potential, T.D. 4,964 ft., set 7-in. casing 4,964 ft., perf. 4,943-4,990 ft.

EAST TEXAS BORDER DRILLING REPORT

Cass County

W. A. Patterson 1 Orr, Morris Sur., drilling 1,723 ft.

Marion County

D. L. Butler et al 1 W. G. Bailey, Robert Maxwell Sur., S.D. 3,505 ft.
A. J. Vestal et al 1 Moseley, David Lane Sur., R.U. and S.D.

Louisiana Gulf Coast

(Continued from Page 70)

Cameron Parish

Superior of California 1 Miami Corp., south of Grand Lake field, drilling sandy shale 10,043 ft.

Evangeline Parish

C. & I. Drilling Co. 1 Evangeline Land & Mineral Co., Pine Prairie prospect, T.D. 6,471 ft., running electrical survey.

St. Mary Parish

E. G. Bateman et al 1 W. P. Foster, Franklin area, drilling shale 10,945 ft.
Humble 1 Marin, Bayou Sale prospect, drilling shale 5,680 ft.
Texas 2 State, Cote Blanche salt dome, drilling salt 4,406 ft.

Terrebonne Parish

Sinclair Prairie 1 Aragon Plantation, Bourg area, drilling shale 7,367 ft.

Vermilion Parish

Phillips 1 Dugas, Erath field, 15-13s-4e, drilling shale 10,100 ft.
Texas 1 Broussard, Erath field, 21-13s-4e, T.D. 11,622 ft., fishing.

Rumors of Proposed 12,000-Ft. Tests Heard as Fields Sag

By OTTO C. PRESSPRICH

SAGINAW, Mich., Apr. 7.—Buyers of Central Michigan crude oil posted 5-cent price advances last week, boosting Midland grade to top price of $1.27 a barrel as the available supply continued to dwindle and new developments gave no indication of a stoppage in the downward trend.

SUMMARY OF COMPLETIONS

	No.	Bbl.	Footage
Oil wells: Arenac County	2	56	5,949
Clare County	1	250	3,784
Midland County	1	150	3,402
Ottawa County	1	15	1,864
Van Buren County	1	60	1,236
Dry holes: Allegan County	1	.....	1,256
Clare County	1	.....	3,932
Total	8	531	21,423

While six of the week's eight completions were producing wells with aggregate initial potential of 531 bbl., all were in established, dwindling fields, best of the lot being the Sun Oil Co. 2 Thayer in Winterfield-Clare. It rated 250 bbl. a day, natural, and is largest producer to date in the field opened last fall, being two locations west of the Rowmor-Hughes opener. Pure Oil Co. 40 Narmore was good for 150 bbl. a day in the Redding-Clare district.

Little other activity was under way anywhere in the state and the weekly issue of drilling permits by the state Conservation Department indicated the downturn will continue. Only five permits, bringing the year's total to 183, were issued, two going to Allegan County, two to Osceola, and the other to Ottawa.

There was no immediate confirmation of a statement by F. R. Frye, state petroleum engineer, that several large companies are contemplating new deep tests in the hope of finding new oil-producing structures. A few are drilling, but still far above the record 7,776-ft. depth reached by Gulf Refining before its Bay County test was interrupted by explosion and fire. Mr. Frye reported, however, that plans are being considered to explore the depleted Buckeye and West Branch fields to as deep as 12,000 ft. Possibly deep tests will be drilled in Roscommon County, too. Such tests would cost in the neighborhood of $100,000 each, he said.

With Michigan production now apparently stabilizing at under 40,000 bbl. a day and the lack of indications of new shallow pools, interest now is chiefly in natural-gas possibilities. Currently several tests are drilling in North and Central Michigan areas.

MICHIGAN COMPLETIONS

Allegan County

Ganges Township: Guy Wray 1 Tucker, SE SW NW 33-2n-16w, dry, T.D. 1,256 ft.

Arenac County

Adams Township: Don Rayburn 1-A Milne, NW NW NW 25-19n-3e, 32 bbl., acid, T.D. 2,956 ft.
Don Rayburn 1 Sonnenberg, SE NE SW Sec. 23, 24 bbl., acid, T.D. 2,993 ft.

Clare County

Redding Township: S. J. Higelmire 1 Wheeler, N½ SE NE 34-19n-6w, dry, T.D. 3,932 ft.
Winterfield Township: Sun Oil Co. 2 Thayer, W½ SE SW 29-20n-6w, 250 bbl., natural, T.D. 3,784 ft.

Midland County

Porter Township: Pure Oil Co. 40 Narmore, NE NE NE 16-13n-1w, 150 bbl., acid, T.D. 3,402 ft.

Ottawa County

Tallmadge Township: Smith Petroleum Co. 4 Kurek, SW NW NE 34-7n-13w, 15 bbl., acid, T.D. 1,869 ft.

Van Buren County

Bloomingdale Township: Bloomingdale Development Co. 3-A West, NE NE NE 18-1s-14w, 60 bbl., acid, T.D. 1,236 ft.

Illinois Fields

(Continued from Page 56)

Aux Vases 3,052-89 ft., P.B. 3,106 ft., ripped casing 3,058-64 ft., 3-qt. shot 2,060-64 ft., putting on pump.
Wickwire & Powers 1 Patterson .. W½ NW NW 1-4s-6e Drilling 200 ft.

La Salle County

O. L. Greer 1 Sam Davis estate .. SW SW SW 23-35n-2e Set 10-in. 240 ft., waiting on cement.

Lawrence County

R. R. Willis 1 W. H. Pinkstaff .... NE NE SE 2-4n-11w Bridgeport 860-940 ft., Buchanan 1,120-55 ft., sand 1,171-1,215 ft., 7-in. 1,132 ft., Glen Dean 1,270 ft., drilling 1,367 ft.
W. Payne 1 H. Payne ..... NW SW NW 20-3n-11w Drilling 1,310 ft.

Marion County

Romine 2 Bardee ..... SW SE SW NE 33-3n-2e Devonian 3,515 ft., S.D. 3,675 ft.
Swan-King 1 Williams ..... SE SE NE SE 26-4n-2e Set 10-in. 106 ft., drilling 1,325 ft., first report.
Swan-King 1 Martin Cemetery ..... SW SW SE SW 36-4n-2e Location, first report.

Montgomery County

Brown et al 1 Luddeke ..... SE NW NW 28-9n-4w First report, old well drilling deeper from 1,801 ft., Devonian 1,896 ft., saturation 1,896-1,900 ft., T.D. 1,911 ft., running 4-in.
O. A. Reed 1 England ..... NE NW NW 19-10n-4w S.D. 845 ft.
H. C. Detrick 1 W. H. Barnes .. NW NE SE 20-10n-2w Drilling 1,290 ft.

Pulaski County

R. G. Williams et al 1 W. L. Richey ..... NE SE SW 9-15s-1e Set 16-in. 92 ft., 12½-in. 310 ft., tools stuck at 325 ft.

Randolph County

J. R. Rankin 1 B. Bierman ..... SW SW SE 3-7s-5w Cypress sand 705 ft., Paint Creek 800 ft., Aux Vases 928 ft., 600 ft. water in hole, S.D. 929 ft.
Gode & Murphy 1 McIntyre .... SW SW SE 10-5s-5w Set 16-in. 100 ft., waiting on cement, first report.

St. Clair County

Burgess 1 Eldman ..... NW SW SE 18-1s-6w Drilling 90 ft.
A. B. Wiggins 1 V. Rasp .... NW NE SW 32-2n-7w Rig, first report.

Saline County

Otis Carter & W. Vaughn 1 H. Roberts ..... SE SW NE 6-8s-7e Rig, first report.

Shelby County

W. H. Sloan 1 Cutler ..... SE SE SE NE 12-10n-2e Drilling 525 ft., first report.
Rose & Durbin 1 Flenner ..... SW SW SE 9-10n-4e Cleaning out at 1,100 ft.

Tazewell County

Bartelmay 1 Mathis ..... SW NW SW 24-25n-3w Drilling 1,050 ft.

Wabash County

Geary Oil 1 McClain ..... SW SE NE 36-2n-12w S.D. 540 ft.
White & Wickwire 1 Fox .. NW NW NW NW 19-1n-11w First report, Pennsylvanian sand 1,252-90 ft., 1,320-40 ft., base Pennsylvanian 1,540 ft., Menard 1,540 ft., Vienna 1,655 ft., Tar Springs sand 1,682 ft., Glen Dean 1,782 ft., drilling 1,805 ft.
Mid-Cont. 1 J. Keiffer ..... SW SW NE 32-1s-12w First report, rigging up rotary.

Wayne County

C. R. Craft 1 J. F. Fischer ..... SE NW NW 34-1s-7e T.D. 3,295 ft., putting on pump.
J. W. Sanders 1 Al Hubble .... E½ SW SE 30-2n-8e First report, moving in rotary tools.
Pure 1 T. R. Michels A ..... W½ SW NW 25-2n-7e T.D. 3,065 ft., 5,000 gal. acid, pumped 13 bbl. oil and 8 bbl. acid water, testing.

Williamson County

I. Hodges 1 Nicholson ..... NE SE NW 21-10s-4e Location, first report.
Sun 1 Old Ben Coal ..... NE NE NW 13-8s-2e Drilling 1,315 ft.
Union Mining 1 Henderson .... SW SW NW 10-9s-2e Drilling 1,020 ft.

White County

Continental 1 Ackerman ..... NE NW NE 25-5s-10e Barlow 2,632-39 ft., Benoist sand 2,824 ft., Renault 2,876 ft., Aux Vases 2,940 ft., coring ahead from 3,061 ft.
Jarvis Bros. 1 E. H. Morris .. SW NW NE 20-5s-14w Vienna 2,335-39 ft., Tar Springs sand 2,366 ft., Glen Dean 2,468 ft., Hardinsburg sand 2,509 ft., Golconda 2,551 ft., Barlow 2,688-94 ft., Benoist 2,839 ft., show oil 2,725-29 ft., 45-min. D.S. test 2,725-40 ft., recovered 50 ft. drilling mud and slight show of oil, no water, drilling 2,858 ft.
Hiawatha Oil 1 Vail ..... NW NW SE 19-7s-11e Flowed 238 bbl. in 15 hr., putting on pump, pumped and flowed 26 bbl. an hr., 3 per cent water, T.D. 2,126 ft.
L. B. Jackson 1 Parker ..... SW NW NW 35-5s-10e Drilling 1,027 ft.
Texas 8 A. J. Poorman ..... SE SE NW 32-3s-8e Set 10-in. 75 ft., drilling 2,915 ft.
J. Meyers 1 Hon ..... NE SE SE 20-4s-14w S.D. 2,872 ft.

Texas Gulf Coast

(Continued from Page 73)

Hull field: O. W. Dyer 1 Rivere, dry, T.D. 3,466 ft.
Republic 168 Dolbear, 20 bbl., ¼-in. choke, top sand 2,359 ft., T.D. 2,374 ft.

Matagorda County

Markham field: Thomar 3 R. J. Sisk, 384 bbl., ¼-in. choke, top sand 3,140 ft., T.D. 3,170 ft.

Tyler County

Spurger field: Republic 7 Sterne, dry, T.D. 4,945 ft.

Wharton County

Withers field: National Pipe & Supply Co. 1 Holub, dry, T.D. 5,600 ft.
Texas 71-B Pierce, 69 bbl., 7/64-in. choke, T.D. 5,543 ft.

TEXAS GULF COAST DRILLING REPORT

Brazoria County

Glenn McCarthy 1 Carr, Angleton field, drilling shale 10,265 ft.
Glenn McCarthy 1 Marmion, Bailey Prairie area, S. Carter Sur., rigging up.
Pure et al 1 Greenameyer, Manor Lake area, drilling shale 6,777 ft.

Chambers County

Dick Schwab 1 R. D. Fisher, Cedar Bayou area, J Steele Sur., drilling shale 5,625 ft.

Hardin County

W. G. Christian 1 Gueydry, M. Chavans Sur., S.D. 8,290 ft.

Harris County

Pure 1 Chase National Bank, J. Sellers Sur., drilling sand and shale 318 ft.

Liberty County

Charles G. Hooks 1 Lockin, Spencer Kirkham Sur., drilling sand and shale 8,425 ft.

Matagorda County

Skelly 1 Yeagley, Blessing field, drilling sandy shale and lime 8,130 ft.

Waller County

Humble 1 Loucks, Katy field, H.&T.C. Sur., drilling shale 7,476 ft.

Wharton County

W. R. Davis 1 Hartman, Lake View area, I.&G.N. Sur., drilling shale 3,785 ft.
Texas Progress 1 Sedlack, Glenflora area, W.C.R.R. Sur., T.D. 6,010 ft., S.D., top Frio 4,110 ft., Textularia Warreni 5,861 ft.

Forest City Basin

(Continued from Page 61)

covery well. Pipe was set on top of the lime at 2,925 ft. last fall, shortly before the Pawnee Royalty Co. sold all Nebraska properties to the Ohio Oil Co. Hunton lime, topped at 2,300 ft., was dry. Should the new owner find oil in the Viola, a new drilling boom could be expected in the Falls City pool. Not much activity is apparent there at present and many of the wells have a disturbing amount of water.

The Ohio abandoned 2 Boice, SE NE 18-1n-16e, a south offset to the discovery well.

Some eight miles north, in the Shubert pool, the Garetson & Knisely 1 Bankers Life, SW SW 30-3n-16e, pumped 15 bbl. of oil per day following acidization of the Hunton lime. Twelve miles northwest of Falls City and a quarter-mile west of Dawson there was some chance for a new pool opener. J. E. Palensky's 1 Oswald had a good show in the Hunton lime. First acidization made no particular effect, however. Further acidization was to be tried.

Phillips Petroleum Co. started 1 Neil, 2 miles southeast of Howe in C SW NE 24-4n-14e, Nemeha County, Nebraska.

In Fremont County, Iowa, the Ohio Oil Co. started its No. 1 Wisnam, just southwest of Farragut in C NW NE 23-68n-41w.

NEBRASKA COMPLETIONS

Richardson County

Shubert pool: Garetson & Knisely 1 Bankers Life, SW SW 30-3n-16e, pumped 15 bbl. an hour with some water, Hunton 2,515 ft., T.D. 2,521 ft.
Falls City pool: Ohio 2 Boice, SE NE 18-1n-16e, dry, Hunton 2,314 ft.
Wildcat: J. E. Palensky 1 Kalous, SW SW 5-2n-13e, dry, Hunton 985 ft., Viola 1,571 ft., Wilcox 1,853 ft., some show oil in Viola.

NEBRASKA DRILLING REPORT

Richardson County

I. T. I. O. 1 Bankers Life ..... NE SE 3-2n-15e Hunton 2,418 ft., deepening.
National Petroleum 1 Oswald .... C NW SW 15-1n-14e Hunton 2,548 ft., T.D. 2,565 ft., some free oil after drilling plug, acidizing.
Ohio 4 Bucholz ..... C SW NW 17-1n-16e Hunton 2,300 ft., drilling plug.

New Wells Will Maintain Production Without Waste

By VICTOR LAURISTON

CHATHAM, Ont., Apr. 5.—Aggregate crude allowable for Turner Valley has been set by the Alberta Conservation Board at 26,000 bbl. a day, continuing the approximate rate for February and March. In the new schedule, Home Oil 2, in North Turner Valley, is the largest producer, with 840 bbl. a day. Other major wells are: Home Oil 1, with 735 bbl.; Alberta Oil Incomes 2, with 725 bbl. Home Oil 3, with 660 bbl., and Foothills Oil & Gas 5, with 625 bbl. All are in North Turner Valley.

The April schedule includes war-emergency production, and tentative allowable for new completions. The board, however, advises that heavy withdrawals beyond the normal efficient rate of production of many of the wells are creating a serious situation, and unless something is done to restore or maintain energy in the field, it may not be possible to maintain the present 26,000-bbl. daily production for the duration of the war. On the other hand, after a slowing down of new completions during the winter months, six new producers are expected in April, and it is hoped these, with additional completions in the spring and early summer, will make possible the continuation of the stabilization program for the balance of 1941.

Turner Valley Lime Tests

NORTH TURNER VALLEY.—Major Oil Investments 1, LSD 5, 34-20-3w5, got the lime at 6,406 ft. and is below 6,664 ft. after cementing production string 50 ft. in.

Home Oil 6, LSD 8, 28-20-3w5, completed at 8,446 ft., got a tight lime formation which has not responded to acidizing. It is blowing at intervals and looks like a small producer.

WEST-CENTRAL FIELD. — Anglo-Phillips 2, LSD 9, 35-19-3w5, completed at 7,749 ft. with natural flow around 225 bbl. a day, has been tubed and acidized. It made 310 bbl. in 15¼ hours through tubing, and will be a good producer.

Regal Royalties 1, LSD 14, 24-19-3w5, is below 7,868 ft., 91 ft. in the Madison limestone. Independent Royalties 1, LSD 7, got the black lime at 8,210 ft. and at 8,225 ft., 471 ft. in the Madison, is acidizing and testing.

Okalta Oil 10, LSD 12, 18-20-2w5, completed at 7,970 ft., 465 ft. in the limestone, with around 120 bbl. a day after initial acid wash. It is reacidizing and testing. Calmont-Northwest 3, LSD 4, got the Madison contact at 7,612 ft. and is deepening below 7,664 ft.

Royalite Oil 54, LSD 1, 7-19-2w5, at total depth of 7,367 ft. has recovered lost packer and is testing.

Turner Valley New Tests

NORTH TURNER VALLEY.—Home Oil 9, LSD 9, 15-20-3w5, rig.

Royalite Oil 58, LSD 7, 22-20-3w5, cellar.

WEST-CENTRAL FIELD.—Argus Royalties 2, LSD 3, 25-19-3w5, spudded and below 337 ft.

Drillers & Producers 1, LSD 13, 7-19-2w5, derrick. Drillers & Producers 2, LSD 12, location. Drillers & Producers 3, LSD 3, location.

Tests in the Foothills

CLEARWATER STRUCTURE.—Clear Oils, 1, LSD 8, 2-35-10w5, bottoming at 1,389 ft., has set 5-in. casing at 853 ft., and is making bailing test of a 68-ft. porous horizon in the Devonian.

MOOSE DOME.—McColl-Frontenac 1, LSD 9, 6-23-6w5, bottoming in the Devonian at 5,200 ft., with some oil and gas, is clearing bridge around 4,100 ft. to make production test.

Border Fields

LETHBRIDGE STRUCTURE. — Lethbridge Petroleums 1, LSD 12, 11-8-22w4, resumed drilling from 3,325 ft.

BLOOD INDIAN RESERVE. — Northwest-West Petroleum 1, LSD 3, 20-5-23w4, drilling below 7,111 ft., more than 991 ft. in the Madison limestone.

TWIN RIVER STRUCTURE.—Nordon Corp. and associates will drill a new test east of Del Bonita and just north of the Montana boundary.

Steveville Field

In the Steveville field, eastern Alberta, Standard of British Columbia 2 Princess, LSD 3, 13-20-12w4, is shut in waiting for equipment to reduce oil-gas ratio. Testing for about a week showed steady production of close to 400 bbl. a day of 26.3-gravity crude from the Madison limestone. Spur line has been built connecting tankage with the C.P.R. siding at Princess, and shipments will be made by tank car to Calgary and Saskatchewan refineries.

Standard 3 Princess, LSD 5, 13-20-12w4, bottoming in the Madison limestone at 3,260 ft., has perforated casing between 3,195 and 3,205 ft. and is testing production. Standard 4 Princess, LSD 13, 12-20-12w4, is deepening from 506 ft. after cementing 10¾-in. at 499 ft. Standard 5 Princess has location in LSD 9, 14-20-12w4, and is working on cellar. Standard 6 is spotted in LSD 15, 12-20-12w4. Anaconda-Patricia 1, LSD 9, 31-20-12w4, is rigged, waiting for water supply. Steveville Oils 1, LSD 5, 18-20-11w4, is waiting for rig from Turner Valley.

Vermilion Field

In the Vermilion field, East Central Alberta, Richardson 1 Western Drilling Co., LSD 14, 20-50-5w4, completed at 1,825 ft., has been placed on the pump. Alberta Southern Oil 1, LSD 15, 20-50-5w4, is deepening from 500 ft.

Albert Production Report

A report issued by the Alberta Petroleum and Natural Gas Conservation Board shows an average daily crude production in Turner Valley for the 8 days ending March 23 of 25,702 bbl., compared with 17,367 bbl. in the same period last year. This was supplemented by 905 bbl. natural gasoline, against 780 bbl. the previous year. Crude production from Steveville field averaged 132 bbl. a day, and from other Alberta fields 145 bbl., bringing the total average daily production for Alberta to 26,884 bbl. There were 141 producing wells in Turner Valley and 18 in other areas, compared with 102 and 13, respectively, a year ago.

Ontario Completions

Dawn field: Union Gas 104, Lot 10, Concession 10, Camden Gore, dry, total depth 1,780 ft.

Chatham Township: Union Gas 32, Lot 19, Concession 9, dry, total depth 1,800 ft.

Windham Township: Dominion Natural Gas 2 Dedeyne, Lot 6, Concession 14, dry, total depth 1,140 ft.

Walpole Township: Walpole Gas Syndicate, Lot 18, Concession 5, dry, total depth 940 ft.

Beaver Oil & Gas-P. L. Jackson, Lot 8, Concession 1, 70,000 cu. ft. of gas, total depth 1,010 ft.

Middleton Township: D. Bliss Syndicate, south half Lot 7, Concession 1, South Talbot Road, dry, total depth 1,300 ft.

Yarmouth Township: Dominion Natural Gas, Lot 14, Concession 9, total depth 1,225 ft., 15,000 cu. ft. of gas a day, may be deepened.

Woodhouse Township: P. L. Jackson, 1 mile east of Simcoe, 15,000 cu. ft. of gas a day.

New Tests Starting

Aldborough Township: Union Gas 3 Orford, Lot A, Concession 12, spudding.

Chatham Township: Union Gas 33, Lot 17, Concession 10, around 150 ft. Union 34, Lot 18, Concession 10, starting.

Malden Township: J. G. Brown, NE. Lot 80, Concession 7, G. Rawlings, drilling. Walker & Drake, NW Lot 67, Concession 6, G. Willet & Son, drilling.

Dover field: Union Gas 24, Lot 6, Front Concession, Dover East Township, below 100 ft.

Oneida Township: Union Gas 256 Haldimand, Lot 10, West Plank Road, starting.

Dawn field: Union Gas 105, Lot 9, Concession 10, Camden Gore, starting.

West Oxford Township: Dominion Natural Gas, north of Sweaborg, skidded rig owing to bad hole.

Middleton Township: Dominion Natural Gas, Lot 24, Concession 4, South Talbot Road, drilling.

Five Wells Start In North Oriskany

COUDERSPORT, Pa., Apr. 7.—New operations in the northern Oriskany gas field now number five, compared with four wells drilling. Two locations were staked in the past week and one well was completed—the fourteenth of the year to date—which was dry and abandoned.

The locations are G. L. Cabot Inc.'s Burnett Hibbard in Woodhull Township, Steuben County, and C. E. Updegraff 2 fee in Elmira City, Chemung County. The Updegraff well is about 1,000 ft. southwest of his first fee well, which was completed in October 1940 with 130,000 cu. ft. of gas from the Oriskany and 70,000 cu. ft. from the Tully lime.

The completed well was the Penn York Natural Gas Co.'s John Harden in West Union Township, Steuben County, bottomed at 5,147 ft., after getting 200 ft. of salt water at 5,146 ft. The top of the Oriskany sand was found at 5,144 ft.

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MISSISSIPPI AND SOUTHEAST

Alabama Wildcat Shows Oil; Mississippi Operations Up

By GEORGE WEBER

JACKSON, Miss., Apr. 7.—Two Mississippi wildcats and one in Alabama report shows of oil, as wildcatting and field operations continue to increase in Mississippi and the southeastern district. Tinsley drilling is at a new high, concentrated in the southeast extension area, where good Woodruff sections are penetrated.

WILDCATS.—In Clarke County, Walsingham & Earles 1 School Land, 16-4n-15e, is reported showing oil in a sand topped at 4,047 ft. In an attempt to sidewall core, operators stuck the tool and are fishing. Grenada County Drilling & Development Co. 1 Connecticut General Life Insurance Co., 28-23n-5e, Grenada County, failed to show expected results last week. The test blew out at 2,370 ft. last month, and encountered a very soft sand at 2,697-2,715 ft. reported to be showing oil. A drill-stem test was attempted at 2,705-20 ft. but the packer did not hold, and the test is shut down, awaiting orders.

Two new wildcats were staked in Mississippi last week. In the northern part of the state P. J. Lunati has set surface casing on 1 fee, 31-3e-1w, Marshall County, and will drill to 3,000 ft. on the 10,000-acre block. R. W. Williams has staked 1 Grant Allen, 26-12n-7e, in Leake County, located on a large block. This important wildcat will spud in mid-April. In Perry County, F. E. Courson has staked tentative location for 3 J. G. Newman Lumber Co., 22-2n-10w, to drill 9,500 ft.

FIELDS.—Mayor Scott of Jackson has asked for bids on the drilling of five wells in the Jackson gas pool. This is a part of the city's campaign to develop new gas production in the waning Jackson gas field. Two have been completed to date in the current project.

At Tinsley, the major northwest-southeast fault was more closely defined by the failure of the W. B. Johnson Drilling Co. 1-C Robertson. The test encountered the Woodruff section at 5,020-5,140 ft., but on drill-stem testing at 5,017-37 ft. recovery of 180 ft. of oil and 680 ft. of salt water was made. The test was abandoned. In Tinsley, 16 rigs are active at present, mainly in the southeast extension area.

MISSISSIPPI COMPLETIONS

Tinsley—Yazoo County

Hassie Hunt 1 Lank Smith, NW NE 31-10-2, 1,168 bbl., ½-in. choke, T.P. 130 lb., T.D. 5,507 ft., 7-in. casing 5,102 ft., perf. 4,940-80 ft., Woodruff zone 4,937-5,025 ft.

Hassie Hunt 3 Stutts, NE SE 30-10-2, 912 bbl., ½-in. choke, T.P. 100 lb., T.D. 5,091 ft., 7-in. casing, 5,086 ft., perf. 4,945-90 ft., Woodruff zone 4,945-5,036 ft.

W. B. Johnson et al 1-C Robertson, SW NW 20-10-2, T.D. 5,200 ft., dry.

Slick-Urschel 13 Slick est., SW SW 35-11-3, pumped 250 bbl., T.D. 4,837 ft., 5½-in. casing 4,828 ft., Woodruff zone 4,814-35 ft.

Sylvan 1-A Moore-Robertson, SW NW 29-10-2, 705 bbl., 22/64-in. choke, T.P. 60 lb., T.D. 5,048 ft., 7-in. casing 5,047 ft., perf. 4,991-5,038 ft., Woodruff zone 4,991-5,046 ft.

Union Producing 1 Stutts, SE SW 30-10-2, 603 bbl., ¼-in. choke, C.P. 155 lb., T.P. 145 lb., T.D., 7-in. casing 5,014 ft., perf. 4,908-45 ft. and 4,955-80 ft., Woodruff zone 4,908-83 ft.

SUMMARY OF COMPLETIONS

	No.	Bbl.	Footage
Oil wells: Tinsley	5	3,638	25,503
Dry holes: Tinsley	1	.....	5,200
Total	6	.....	30,703

MISSISSIPPI DRILLING REPORT

Clarke County

Walsingham & Earles 1 School Land, SW NW NE 16-4n-15e, T.D. 4,057 ft., report show oil, fishing.

Grenada County

Grenada County Drilling & Dev. 1 Connecticut General, NW SE 28-23n-5e, T.D. 2,727 ft., D.S. test failed, W.O.

Lauderdale County

Magnolia Pet. Co. 1 Culpepper, NW NE 4-8n-14e, coring 2,417 ft.

Leake County

R. W. Williams 1 Grant Allen, NW SW 26-12-7e, first report.

Marshall County

P. J. Lunati 1 fee, SW SW 31-3s-1w, first report.

Noxubee County

Hope & Thompson 1 Donahoo, NW 25-16-17, drilling lime and streaks of sand 2,687 ft.

Sharkey County

British American 1-A Houston, N½ NE SW 23-11-7w, drilling 171 ft.

Stone County

H. I. Morgan 2 Dantzler Lumber Co., NE SE 4-4s-10w, drilling 8,050 ft.

Warren County

Waggoner Bros. Oil Co. 1 Parker, NW NW 17-14n-1e, T.D. 7,013 ft., to deepen.

ALABAMA DRILLING REPORT

Colbert County

Mellen & Gear 1 Alsobrook, S½ SW NW 10-4s-15w, S.D. 1,679 ft., show heavy oil 1,475 ft.

Fayette County

B. L. Fillingame 1 Ala. Educational Ass'n., NW SW 3-16s-12w, T.D. 1,700 ft., moving in heavier rig.

Franklin County

E. O. Heath, Jr., 1 W. O. Hester, SW SW 4-6s-12w, T.D. 557½ ft., waiting on casing.

Limestone County

Shaw, Johnson & Thompson 2 Carter, SE SW 35-2s-5w, S.D. 360 ft.

Madison County

W. W. Newman 4 Nichols, NE NE NE 2-6s-2e, 6-in. casing 213 ft., sulfur water 213-18 ft., T.D. 222½ ft., resetting casing.

Wilcox County

Reid Clark et al 1 R. F. McWilliams, NE NW SE 9-11-10, rig.

GEORGIA DRILLING REPORT

Dougherty County

Ellis & Hatten 1 Reynolds, Land Lot 302, second land district, G.M. Dist. 620, Moving in material.

Means Sought to Produce East Texas Iron With Gas

WASHINGTON, D. C., Apr. 7.—Reconstruction Finance Corp. officials this week had before them details of at least one proposal which would utilize both the natural-gas resources and the huge iron-ore deposits of East Texas for production of pig iron.

Representative Patton of Texas and P. M. Chamberlain, of Pittsburgh, Pa., conferred with the R.F.C. to acquaint the organizations with plans for an iron-ore smelter at Rusk, Tex.

Mr. Patton also announced that a group of Texans were filing application at Austin to incorporate a $1,000,000 organization to back a revival of the iron industry in East Texas.

Estimated Daily Average Production Up Slightly

Estimated daily gross production of all companies for the week ended April 4, 1941, in North Louisiana and Arkansas, was as follows:

NORTH LOUISIANA

	Bbl.
Bellevue	625
Caddo light	6,120
Caddo heavy	2,100
Converse	565
Cotton Valley	*13,600
Cross Lake	2,850
De Soto and Red River	975
Elm Grove	325
Haynesville	2,600
Holly	90
Homer	2,810
Lisbon	†3,370
Little Creek	115
Nebo	1,225
Olla	10,345
Pleasant Hill	90
Rodessa	15,600
Sarepta-Carterville	‡265
Sligo	1,785
South Olla	100
Sugar Creek	1,325
Urania	2,235
Zwolle	1,285
Total	70,400

SOUTH ARKANSAS

Atlanta	2,635
Big Creek	125
Buckner	2,235
Champagnolle	1,125
Dorcheat	1,680
El Dorado	1,540
Fouke	300
Lewisville	400
Lisbon	210
Magnolia	19,685
McKamie	2,300
Miller County	240
Nevada	575
Nick Springs	1,075
Rodessa	1,575
Schuler	16,370
Smackover light	1,835
Smackover heavy	13,215
Stephens	490
Troy	1,035
Urbana	1,650
Village	1,000
Total	71,295

Rodessa, Texas, 15,275 bbl.
*3,960 bbl. is distillate.
†570 bbl. is Smackover lime distillate.
‡43 bbl. is distillate.

LEADING OKLAHOMA FIELDS

Daily average production for leading Oklahoma fields for the week ended April 5, 1941, was as follows:

	Apr. 5	Mar. 29
Allen	4,700	4,700
Billings	6,200	6,225
Burbank	7,550	7,575
South Burbank	7,500	7,550
Balance Osage	16,475	16,975
Blackwell district	3,600	3,625
Bristow-Slick	6,350	6,375
Chandler	1,025	1,025
Crescent	1,850	1,925
East Cromwell	3,050	3,025
Cromwell	2,875	2,925
Cumberland	6,150	6,150
Cushing-Shamrock	8,875	8,850
Dill	6,575	6,550
Duncan	3,650	3,650
Edmond	3,450	3,500
Fish	2,675	2,650
Fitts	12,800	12,700
Jesse	2,050	2,075
Graham-Fox	2,175	2,175
Healdton	8,500	8,600
Hewitt	8,350	8,350
Keokuk	2,800	2,875
Konawa	975	975
Lucien	5,575	5,650
Moore	1,000	1,025
Northeastern counties	17,100	17,200
Oklahoma City	102,350	90,700
Olympic	1,725	1,750
Ramsey	3,500	3,525
Sasakwa	1,300	1,325
Sholem-Alechem	2,475	2,550
Seminole district:		
Bowlegs	6,375	6,375
Carr City	2,450	2,425
Dora	1,250	1,250
Earlsboro	3,975	3,950
East Earlsboro	1,650	1,650
South Earlsboro	450	475
Little River	6,475	6,450
East Little River	650	650
Mission	1,375	1,375
Seminole	6,450	6,450
East Seminole	950	975
Searight	1,875	1,875
Total Seminole	19,200	19,275
St. Louis-Pearson	33,925	33,900
Tatums-Tussy	5,750	5,775
Tonkawa-Garber-Thomas	3,550	3,575
Wewoka	1,550	1,725
Yale-Jennings	3,250	3,250
Total Oklahoma	412,875	409,250

CRUDE-OIL PRICES IN REPRESENTATIVE FIELDS

The highest price for Illinois basin crude posted by the Texas Co. in the general advance April 1, a flat price for all gravities of $1.22 per barrel, has been adopted by Ohio Oil Co., effective April 7 and Sohio Corp., purchasing unit of Standard Oil Co. of Ohio, effective April 10. Toronto Pipe Line Co., buying exclusively for account of British American Oil Co., has announced it will pay the higher price of $1.22 per barrel which is 7 cents above the postings prevailing prior to April 1. In the original Illinois crude-oil advance, all purchasers raised postings 5 cents to a flat figure of $1.20, excepting the Texas Co. which made the increase 7 cents. Following are representative crude-price schedules in prices per barrel:

East Texas	$1.15
Conroe	1.33
Tepetate, Louisiana	1.08
Smackover, Arkansas, heavy	.76
Illinois basin	1.22
Pecos County, Texas	.85
Lance Creek, Wyoming	.82
Bradford, Pennsylvania	2.15

Gravity Schedules

Top prices include all gravities above grades designated, and low prices include all gravities below grades designated:

Gravity	Signal Hill Calif.	Oklahoma, Kansas	Gulf Coast, Texas	West Texas, Lea County N. M.
18-18.9	$0.65	...	...	...
19-19.9	.69	...	$0.96	$0.60
20-20.9	.73	$0.75	.98	.62
21-21.9	.78	.77	1.00	.64
22-22.9	.82	.79	1.02	.66
23-23.9	.86	.81	1.04	.68
24-24.9	.90	.83	1.06	.70
25-25.9	.95	.85	1.08	.72
26-26.9	.99	.87	1.10	.74
27-27.9	1.03	.89	1.12	.76
28-28.9	1.07	.91	1.14	.78
29-29.9	1.10	.93	1.16	.80
30-30.9	1.14	.95	1.18	.82
31-31.9	...	.97	1.20	.84
32-32.9	...	.99	1.22	.86
33-33.9	...	1.01	1.24	.88
34-34.9	...	1.03	1.26	.90
35-35.9	...	1.05	1.28	.92
36-36.9	...	1.07	1.30	.94
37-37.9	...	1.09	1.32	.96
38-38.9	...	1.11	1.34	.98
39-39.9	...	1.13	1.36	1.00
40 and above	...	1.15	1.38	1.02

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Eastern Kentucky Active As Markets Expand

(Continued from Page 9)

a single deep test has been drilled on structure, certainly not on a pronounced structure, and where the deeper sands may exist there is every reason to believe that both oil and gas may be developed from these deep sands."

Three Deep Wildcat Tests

The first of three wildcat deep tests in eastern Kentucky was finished during the first week of March. The Inland Gas Co. completed a test on the Burke dome in Elliott County in the Knox dolomite at a total depth of 4,200 ft. Although it was a dry hole it furnished important geological information. The top of the St. Peter sand was encountered at 3,929 ft. From 3,944 to 3,965 ft. was a break of sandy lime. The St. Peter was picked up again and there was 60 ft. of pure St. Peter sand from 3,965 to 4,025 ft. Salt water at the rate of two bailers per hour was encountered between 3,972 and 3,974 ft. The well was drilled from the St. Peter into the Knox dolomite and encountered a show of gas at 4,038 ft. and a rainbow of oil at 4,080 ft. Due to the thickness of the St. Peter sand encountered and the proof of its existence in the area, and also the shows in the Knox dolomite, the well was considered very favorable to the area.

Two additional wildcat deep tests being watched with close interest by geologists and oil men are drilling at present. In Magoffin County on the Paint Creek uplift near Oil Springs the Cumberland Petroleum Co. is drilling ahead at 4,632 ft. in gray lime expecting to pick up the St. Peter momentarily. In Laurel County on the Sinking Creek dome, the Globe Oil & Gas Co. is drilling ahead at 2,985 ft. in the Knox dolomite, which was encountered at 2,975 ft. This Sinking Creek dome well is testing the Ordovician series, but did not encounter the St. Peter sand, nor was it expected to be encountered as geologists generally agree that the St. Peter is absent in this southeastern area.

These two wells are not being drilled, and the Inland well was not drilled on the outstanding structures nor in the most pronounced areas where deep production might be expected. But they are the first of the new deep tests to be drilled as they present a happy combination of acreage interests of the various companies with holdings in the area. Stanolind, Magnolia, Ashland Oil & Refining Co., Petroleum Exploration Co., and Kentucky-West Virginia Gas Co., have all put up bottom-hole money for these wells.

A more intensified deep-drilling schedule is expected in eastern Kentucky in the near future not only due to the interest already evidenced but because eastern Kentucky is in line with the present play in southeastern Ohio and western West Virginia where seismograph crews are now in operation and major companies are leasing actively. According to the various geologists already quoted, eastern Kentucky is stratigraphically similar to the southeastern Ohio and western West Virginia areas.

In the expectation of possible future deep production in eastern Kentucky, Ashland Oil & Refining Co. is already laying plans to increase its refinery capacity so as eventually to be in a position to handle whatever new oil may come. During the past year Ashland Oil & Refining Co. increased its refinery capacity by 50 per cent and within the next 40 days it will have increased its capacity by an additional 20 per cent. At present this company handles most eastern Kentucky production, but so little oil is now produced in eastern Kentucky that the company buys the greater part of its crude from Illinois—handling approximately 8,000 bbl. daily from Illinois as compared to around 4,200 bbl. daily from eastern Kentucky. Western Kentucky provides around 1,800 bbl. which brings the total daily pipe-line runs to around 8,000 bbl. Paul G. Blazer, president of the Ashland Oil & Refining Co., who has been particularly outstanding in the influence he has had on the national oil situation by his effective work in Washington against attempts of transportation divorcement, has built the Ashland Oil & Refining Co. into a particularly active and important company in the area. The company is buying up old shallow production due to its possibilities of producing from the deeper formations. For example, the company recently purchased primarily for its deep possibilities, a lease which from 72 wells produces a total of 19 bbl. daily.

The eastern Kentucky area is still the eastern Kentucky of song and legend with its mountain roads, mountaineers and moonshine presenting amusing and harassing situations in the conduct of routine operations. Whereas oil and gas activities in the rest of the country have more or less settled down to a strict business, eastern Kentucky still provides a color and a flavor that is peculiar to the early days of the industry.

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Geologists Hold Most Successful Meeting in Society's History

(Continued from Page 14)

at the points where it is needed cannot be over 150,000 bbl. daily.

The shortage of oil in Germany throws an extra burden on the railroads and the fine system of military roads cannot be used. There is definite evidence that Germany is short of lubricating oils and also of wax and asphalt. The reserve stocks amassed prior to the war cannot have been large, otherwise lubes would have been included in these stocks.

Dr. Wilson pointed out that the lulls in Germany's attacks on England as well as its failure to engage in an all-out blitzkrieg may have been largely due to the transportation bottlenecks. To keep 8,000 bombers and 4,000 fighters in the air for 5 hours would require 7,000,000 gallons of gasoline distributed at some 200 airports from France to Norway. This would provide a serious problem but to keep up an incessant attack for several days would be virtually impossible. An all-over shortage probably does not exist, but there is a definite and serious shortage of oil at those points where it is needed most.

The long-time outlook, according to Dr. Wilson, is as follows:

1. Italy will continue to be a liability rather than an asset.

2. The shortage of oil for civilian use will increasingly affect industry and reduce production.

3. Increased bombing by England will reduce the available supply. The result is that England may win the war without the necessity of landing an army.

The address by J. Edgar Pew, vice president of the Sun Oil Co., supplemented Dr. Wilson's remarks by stressing the efficiency of the American oil industry under private control. This address was printed in The Oil and Gas Journal last week.

The symposium was concluded by N. C. McGowen, president of United Gas Pipe Line Co. and United Producing Co., who spoke on natural gas with regard to its place in national defense. Mr. McGowen pointed out that conditions were very different from those prevailing during the last war when the prime emphasis was on training men. Today American industry has taken its place in the front-line trenches and production of armaments and equipment is the prime essential. To take its proper place in the scheme of things, the natural-gas industry today produces 2,500,000,000 cu. ft. as against 800,000,000 cu. ft. in 1918. Then the use of natural gas was limited to small areas near the source of supply. Following the development of the high-pressure gas line, gas can now be transported to any part of the country.

The expansion of the gas industry has stimulated the discovery and development of new reserves, which now total 66,000,000,000 cu. ft.

To indicate the expansion of the use of natural gas, Mr. McGowen pointed out that Houston, which is surrounded by gas supplies, did not have it until 1926.

Looking forward to the post-war period, Mr. McGowen considered that the development of American industry would expand as rapidly as after the last war. In this expansion, gas would play an important role. He did not share the pessimism of some of the other speakers with regard to the discovery of new exploration methods. Pointing out that geophysics was developed after the last war and that its possibilities had hardly been thought of before that time, he suggested that something equally revolutionary might arise out of the current war. Deep drilling for gas would probably increase reserves to even a greater extent than in the case of oil.

Many other papers of general and regional scope were presented before the meeting. Abstracts of the more important of these were published in The Oil and Gas Journal on April 3.

The American Association of Petroleum Geologists elected as its president for the coming year Ed W. Owen, of San Antonio, Tex. Mr. Owen had served the association as secretary-treasurer for the past 2 years and his elevation to the highest office was in appreciation of his services in that capacity. He succeeds Dr. L. C. Snider, formerly consultant to Henry L. Doherty & Co., and now professor of geology at the University of Texas. Earl B. Noble, Union Oil Co. of California, was elected vice president and E. O. Markham, geologist with Carter Oil Co., Tulsa, was elected secretary-treasurer. Both of these elections were by acclamation. Dr. W. A. ver Wiebe, professor of geology at the University of Wichita, was unanimously reelected to a fifth term as editor of the association's bulletin.

H. B. Peacock, Geophysical Service, Inc., Houston, was elected president of the Society of Exploration Geophysicists, succeeding W. T. Born, Geophysical Research Corp., Tulsa. Frank Goldstone, Shell Oil Co., Houston, and W. M. Rust, Jr., Humble Oil & Refining Co., Houston, were elected vice president and secretary-treasurer, respectively. R. D. Wyckoff, Gulf Research & Development Co., Pittsburgh, Pa., was reelected to serve a third term as editor of the society's bulletin.

The Society of Economic Paleontologists and Mineralogists elected Dr. Henry V. Howe, Louisiana State University, as president to succeed Dr. Carey Croneis, University of Chicago. Miss Alva G. Ellisor, Humble Oil & Refining Co., Houston, was elected vice president and Dr. H. B. Stenzel, Bureau of Economic Geology, Austin, Tex., was reelected secretary-treasurer.

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Mid-Continent A.S.M.E. to Meet April 14

Garmon O. Kimmell, of Black, Sivalls & Bryson, Inc., will address the Mid-Continent section of the American Society of Mechanical Engineers April 14, at a dinner meeting to be held in Fuller's Cafeteria, Tulsa, at 5:30 p.m. Mr Kimmell's topic will be "Test Procedure for Evaluating Distillate-Well Properties." Mr. Kimmell has conducted well tests and done research work in six states and in Canada.

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Credit

The photo of officers of the Independent Oil Producers Association of Illinois appearing on Page 62 of the March 27 issue should have carried a credit line "Courtesy the Midwest Oil Journal."

Personal Paragraphs

LEE MINTER, petroleum engineer with Belmont Quadrangle Drilling Co., Bradford, Pa., recently married Miss Jane Leonard of Bradford. They are making their home in Medina, Ohio.

DR. THOMAS MIDGLEY, JR., discoverer of tetraethyl lead, was awarded the Priestly Medal at the annual meeting of the American Chemical Society in St. Louis, Mo., this week. This is the society's highest award for an achievement in chemical research. Dr. Midgley attended in a wheel chair as he was stricken with infantile paralysis, from which he is now recovering.

JOHN C. DALLAS has been reelected president of Roxana Petroleum, Ltd., of Calgary, Alta., with M. A. VAN ROGGEM, vice president; ED W. KOLB, secretary-treasurer, and ELMER JOHNSTON, F. M. GRAHAM and ARTHUR G. GRAVES directors.

LTS. CLIFTON H. CHAMBERLAIN, JR., of Wichita Falls, Tex., CHARLES A. SULLINS, of Beeville, Tex., and MAX F. SCHLATHER, of Shreveport, La., have left their positions with United Gas Pipe Line Co. to enter active duty in the U. S. Army.

GEORGE W. RITTENOUR, a member of Richfield Oil Corp.'s marketing staff for 17 years and for the past 7 or 8 years in the Pacific Northwest, has been made sales manager of Fletcher Oil Co.

J. D. BLANTON, former secretary-treasurer of Great National Oil Corp., Shreveport, La., has become so prominent in dairy circles that he was recently elected president of the Louisiana Jersey Cattle Club.

DR. R. D. WYCKOFF, of the Gulf Research & Development Co., Pittsburgh, Pa., addressed the Gulf Coast chapter of the A.I.M.E. at the association's monthly meeting at Houston, Tex., Tuesday. Dr. Wyckoff spoke on "Present Tendencies in Reservoir Studies."

PROF. JUDSON S. SWEARINGEN, of the department of chemical engineering at the University of Texas, last week discussed recycling processes at an open meeting of the East Texas Geological Society.

DR. GUSTAV EGLOFF, research director, Universal Oil Products Co., Chicago, Ill., and a member of the National Research Council's tour of industrial exploration in Latin America, spoke before the Peruvian Engineering Society at Lima.

RUSSELL HUNT, treasurer of the Aero Exploration Co., Tulsa, has been elected a director in the Falcon-Seaboard Drilling Co.

W. A. STEWART, director of Superior Oil Co. with offices in Houston, Tex., is spending several days in Los Angeles, Calif., on company business.

FRED ALBERT DUPREE, maintenance-crew foreman of Sterlington, Monroe district, for United Pipe Line Co., recently completed 25 years of service with the company and its predecessor companies.

J. C. CASSLER, who recently severed his connections with Joiner Oil Corp., of which firm he was vice president and general manager, is now conducting his own business in Dallas, Tex.

D. D. CHRISTNER, Fort Worth, Tex., geologist for the Texas-New Mexico division of Continental Oil Co., has returned to his office after attending funeral services for his father, J. H. Christner, who died at Weslaco, Tex., March 21.

HENRY W. BOGGESS, superintendent, Sinclair Prairie Oil Co., has the unusual hobby of collecting razors—some of which are centuries old. He and his hobby were featured in a story in a Tulsa newspaper last week.

A. B. SIMMONS, chief accountant of the pipe-line and producing departments at Shreveport, La., for Standard Oil Co. of Louisiana, recently received his 30-year button from the company, commemorating completion of three decades of service with the company.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

When lightning struck a big Healdton oil tank recently, there was no loss of oil or metal. A tank-protecting device had been attached and it sidetracked the conflagration very neatly.

Two new productive sands were discovered in the Electra pool of the Texas Panhandle. . . . In Kansas, no completions of importance were reported.

Wells are being drawn upon to their capacities and still the supply fails to catch up with the demand to an extent that would lower prices.

In addition to the administration's foreign diplomatic entanglements, it has a varied assortment of problems on its hands. Foremost is the gasoline question.

20 YEARS AGO

Recent discoveries of new pools are adding to the complexities of oil-producing trade problems. At a time when efforts are being made to reduce the output of the fields, tests are being drilled into prolific new pools.

Producers & Refiners Corp., owning 27 producing wells in the Lander field, Wyoming, completed the installation of an electric pumping plant.

Cable advices from Peking state that the Japanese activities in Shenshi have not resulted in getting oil concessions.

10 YEARS AGO

Otto Bradford, Oklahoma City field umpire, has prepared a petition asking the Oklahoma Corporation Commission to set a hearing for the pipe-line companies and other purchasers to fix their nominations and an allowable outlet for the Oklahoma City pool.

A temporary injunction restraining the Texas Railroad Commission from enforcing the 90,000-bbl. oil-proration order on East Texas was granted by District Judge J. D. Moore on application of Carl Estes, editor of a Tyler newspaper.

W. G. SKELLY, Tulsa, president of Skelly Oil Co., addressed the Southwest Aviation Conference last week in Wichita, Kans.

BAXTER D. GOODRICH, assistant district engineer, United Pipe Line Co., at Jackson, Miss., has been transferred to the general office at Shreveport, La., as assistant engineer.

D. J. HARVEY, superintendent of Plant 2 of the Pennzoil Co., Oil City, Pa., has been named vice chairman of the Oil City Community Fund campaign.

BILL JENKINS has returned to his home in Wichita Falls, Tex., after a 3-year stay in Cucuta, Colombia, South America. He was sent to Colombia by Texas Co. He is visiting his parents in the Texas city.

JOHN R. SUMAN, vice president in charge of production for the Humble Oil & Refining Co., Houston, Tex., was the principal speaker at the Petroleum Engineers Club luncheon at Texas A. & M. College last week.

E. L. SMITH, E. B. GERMANY, and JAKE HAMON, Dallas, Tex., independent operators, last week composed a committee welcoming a special railroad-car load of good-will trippers from Hawkins, the development center of the Wood County, Texas, field.

WALTER G. TSCHUDIN, director of Sinclair subsidiary operations in Mexico for 25 years prior to expropriation and since 1938 an independent operator in the Gulf Coast, is confined to a hospital in St. Louis, Mo. Mrs. Tschudin, while visiting her husband in St. Louis, died March 31.

F. A. NELSON has been appointed district geologist in the Gulf Coast division of the Shell Oil Co., Inc., at Houston, Tex.

K. R. PROCTOR and L. S. PIERCE, Cleveland, Ohio, have been elected vice presidents of the National Refining Co.

J. H. DUKE, Hillsboro, Tex., district manager, Community Natural Gas Co., has been elected a director of the Hillsboro Chamber of Commerce for 1941.

L. J. VAN DIJK, equipment engineer, and E. R. PARR, drilling superintendent, for the Caribbean Petroleum Co. in Venezuela, have completed an inspection trip through Mid-Continent fields under the guidance of EARL DAVIS, Tulsa, drilling superintendent for Shell Oil Co., Inc.

F. H. HOLMES, assistant superintendent of the San Antonio refinery of Texas Co., has been transferred to New York City. His place has temporarily been given to W. G. COPELAND, formerly an assistant to the superintendent of the West Tulsa works.

FRANK M. MICHEL, general foreman of operations at Du Bois, Pa., for United Natural Gas Co. for 24 years, announced his retirement at a testimonial dinner there March 30. His employment with the company covered a total period of 44 years. The first 20 years of service were spent at Meadville, Oil City and Titusville, Pa.

Right-Hand Man

G. A. (Pop) Mabry, newly appointed assistant to the president of Humble Oil & Refining Co., Houston, Tex., was born in McGregor, Tex., in 1902. He began his career in the oil industry with his present company 17 years ago, when he became associated with the sales department at the company's refinery at Baytown, Tex.

G. A. MABRY

In 1930, he was transferred to Houston, where he was associated with the sales and advertising departments. In this connection he established the "Humble Lubricator" and later, the "Refinery Bee," two magazines which are published by the company in conjunction with sales and advertising promotional work. He was made publicity director of the sales department in 1934.

In his present position Mr. Mabry will retain his duties in the sales department, and in addition will assist the president by handling press contacts and other duties assigned to him.

Mr. Mabry is known to his many friends as "Pop," a nickname he acquired during his early manhood. He is married, has one son and is a past president of the Houston Rotary Club.

A. C. GALBRAITH, Los Angeles, Calif., vice president of Union Oil Co. in charge of personnel and industrial relations, has resigned to engage in private councillor practice.

LELAND W. JONES, district geologist at Edmond, Okla., for the Ohio Oil Co. for a number of years before moving to Oklahoma City, has joined the Bryan Petroleum Co. at Tulsa.

A. V. HOENIG, vice president, Indian Territory Illuminating Oil Co., Bartlesville, Okla., underwent an emergency appendectomy last week, but is reported to be resting easily.

J. E. MOORHEAD, Oil City, Pa., executive secretary of the Pennsylvania Grade Crude Oil Association, addressed the Erie, Pa., Rotary Club April 2 on "Pennsylvania Oils and National Defense."

RAY BREARLEY has been elected president of the recently organized Conoco Club, composed of employes of the Continental Oil Co. and its subsidiaries in its Fort Worth district office. There are 60 members of the club.

J. W. JORDAN, division superintendent in charge of production of Sinclair Wyoming Oil Co., operating in Illinois, Wyoming and Mississippi, has been made general superintendent in charge of production for Sinclair domestic producing companies. These are Sinclair Prairie Oil Co., Sinclair Wyoming Oil Co., and Reploor Oil Co., the last named operating in New Mexico.

GEORGE A. PETERKIN, vice president, Latex Construction Co., Houston, Tex., has left with Mrs. Peterkin for South America. He is traveling by plane, and will visit Venezuela and Colombia.

FRANK W. McCARTHY, party chief with the United Gas Pipe Line Co., has been transferred from the Houston, Tex., district to the general-office engineering department in Shreveport, La.

OTTO WALCHLI, Wellsville, N. Y.; W. J. BRUNDRED, Oil City, Pa., and PHILIP N. FAINE, New Straitsville, Ohio, have been appointed members of the Independent Petroleum Association committee on the wage-hour law.

HENRY ROGATZ, Texas Panhandle independent geologist, is recovering rapidly in an Amarillo hospital from a recent appendectomy. His mother, Mrs. I. Rogatz, of New York City, has been in Amarillo with him.

Shifts: K. A. COVELL, manager, Pure Oil Co., from Tulsa to Fort Worth, Tex.; H. E. GRANBERRY, engineer, Magnolia Petroleum Co., from Palestine, Tex., to Texarkana, Tex.; J. P. CLINE, geologist, National Geophysical Co., from Lovington, N. M., to Hobbs, N. M.; CRAIG FERRIS, geologist, Mott-Smith Corp., from Navasota, Tex., to Huntsville, Tex.; JOHN G. DEE, president, Illinois Mid-Continent Co., from Fairfield, Ill., to Mount Carmel, Ill.; JOHN P. BOWDITCH, vice president, Yarg Producing & Refining Co., from Elkton, Md., to Wilmington, Del.; EWIN GABY, engineer, Geophysical Service, Inc., from Jackson, Miss., to Lake Charles, La.; ARTHUR C. BOYCE, vice president, Darby Petroleum Corp., from New York City to Monterey, Miss.

J. C. ROBERTS, independent operator of Fort Worth, Tex., and Miss Margaret Liston of Fort Worth will be married the middle of April. They will make a honeymoon trip to Cuba.

GEORGE HARRIS, SR., Calgary, Alta., has been appointed president of National Petroleum Corp. ROBERT WILKINSON is vice president and managing director, E. E. NOTT is secretary-treasurer, and W. G. PETERSON, L. H. STACK and D. P. McDONALD are directors.

EDWARD N. McDONALD has been elected vice president of the Freedom Oil Co., Pittsburgh, Pa., and RALPH N. NEELEY has been named manager of bulk plants and service-station distribution in Ohio and West Virginia. Mr. McDonald will be in charge of retail sales.

W. W. WELDON, safety director of Standard Oil Co. of Louisiana, Baton Rouge, La., will address members of the Ark-La-Tex chapter of the W.P.R.A. in El Dorado this week on the subject "Accident Prevention Pays Dividends." A general discussion of the subject will follow reports made by S. D. SALTONSTALL, Lion Oil Refining Co., El Dorado, Ark.; H. A. KENNEDY, Root Petroleum Co., El Dorado, and O. B. BINGHAM, Henry H. Cross Co., El Dorado.

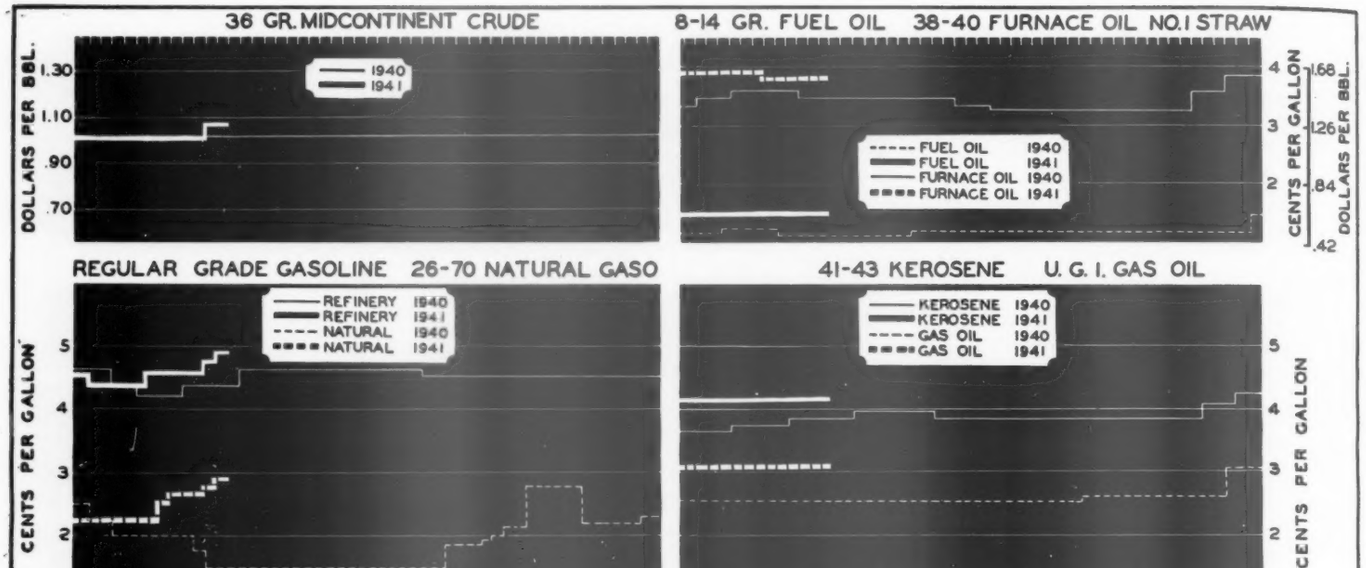
CLAUDE H. MAY, former chief draftsman in the Monroe, La., district, United Gas Pipe Line Co., has been transferred to Shreveport, where he is located in the general-office engineering department.

DICK T. FENWICK, natural-gas engineer with Southern Production Co., has been transferred from the company's home office in Birmingham, Ala., to Shreveport, La., where the company is developing properties in the Joaquin field.

FLA LEWIS, Dallas, Tex., is a newcomer to the oil industry in the organization of the Mid-Continent Drilling Contractors, Inc., with offices in the Gulf States Building, Dallas. Mr. Lewis is president of the firm.

WILLIAM WALLACE MEIN, president; LOUIS J. BRUNEL, vice president and general manager; J. TEDESCO, secretary and treasurer, and E. J. VALENCIA, assistant treasurer, have been reelected officers of Bishop Oil Co., which operates on the Pacific Coast.

GEORGE D. MORGAN, president of the Cardinal Oil Co., San Angelo, Tex., and Mrs. Morgan are visiting their son, Tom Morgan, a student in Massachusetts Institute of Technology at Cambridge, Mass., and their daughter, Miss Marjory Morgan, who is attending the Katherine Gibbs Secretarial School in Boston. They will spend some time in New York and return to Texas about April 10.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

Tank-Wagon Price Increases Applied To Midwest and Mountain States

By H. STANLEY NORMAN

MOTOR fuel tank-wagon prices, the real index to economic welfare of the petroleum industry under modern operating practices, this week broke through the crust of stagnation and followed tank-car and crude quotations into higher ground. Higher tank-wagon prices were quoted over a large section of the Northeast, more than a dozen states in the Middle West and in most of the Rocky Mountain area.

Before the Middle West tank-wagon market reacted upward, Mid-Continent refiners elevated their tank-car quotations another ⅛ cent per gallon and posted prices for crude advanced 5 to 11 cents per barrel. Standard Oil Co. (Indiana) inaugurated the general advance in the Middle West tank-wagon market April 5 when the company raised all normal and special quotations to consumers and dealers ½ cent per gallon on all grades of gasoline. The general increase applied in Illinois, Indiana, Michigan, Wisconsin, Minnesota, North Dakota, South Dakota, Iowa, Missouri, and Kansas.

Other Areas Included

Two days later, on April 7, Continental Oil Co. advanced the tank-wagon price on all grades of gasoline at subnormal points in Utah, Idaho, Colorado, Wyoming, New Mexico, and Oklahoma.

Between April 1 and 4, Socony-Vacuum Oil Co., Inc., advanced tank-wagon prices to dealers and consumers in western and northern New York State and at several New England points. The advance covered territory as far south as metropolitan New York.

Dealers passed the higher product costs along to consumers in most cases. In territories where the dealer margins had been subnormal, service station prices were increased 1 cent per gallon or more.

Refined Oil Market Barometer

Application of tank-wagon price increases to most midwestern, Rocky Mountain and a few northeastern states combined this week with additional refinery gasoline advances to put petroleum markets in the best position they have occupied for nearly 2 years. Mid-Continent and Gulf Coast refiners have advanced prices on most grades of motor fuel ⅛ cent. The market is still favorable to sellers.

MID-CONTINENT: Gasoline continues strong despite price advances.

GULF COAST: Motor-fuel and distillate-fuel prices higher.

CALIFORNIA: Inferior octane gasolines soft.

PENNSYLVANIA: Demand for neutrals improving. Wax prices up.

CHICAGO: Gasoline and most fuel oils in active demand.

Only a coincidental relationship exists between the current movement of tank-car and tank-wagon gasoline prices and the advance of crude postings, in the opinions of most marketers. Refinery markets are still buoyed by the impact of consumption in excess of the more liberal estimates at the start of this year. The spot market for specification motor fuel is tight and inferior products requiring further treatment or blending to meet competitive standards are practically unobtainable at present offerings.

The season of high consumption is in early stages of development in some parts of the country and others will reach the starting barrier in a few weeks. New evidence is reaching the records of refiners each week confirming earlier indications of the highest consuming season in the history of the industry.

Fractional advances in the quotations of refiners to spot buyers continue without an unfavorable reaction on demand. Spot suppliers are asking 4⅞ to 5 cents per gallon for regular gasoline, basis Oklahoma (Group 3). The third-structure material is quoted by most refiners at a range of 4⅛ to 4½ cents. Supplies of low-octane gasoline are limited. The demand from buyers in position to dispose of large quantities or improve specifications by blending is more vigorous than for higher-quality products.

Distillates Show Resistance

Demand for distillate fuel oils now does not compare favorably with winter months, but considerable material in this same general fractionation range is going into tractor fuels for which the market is reasonably firm. Kerosene is still moderately active at unchanged prices. There are a few refiners willing to make price concessions on distillate fuels but for the most part resistance to lower bids is being maintained.

Refiners report that the current gasoline market is in the strongest position it has occupied for nearly 2 years. Stocks are substantially lower this year at several inland refineries than at this time in 1940. The increase of 8 to 10 per cent in demand indicated for the calendar year is causing refineries to consider their inventories as assets of superior value.

The natural-gasoline market continues in the strong position it has occupied for the past 3 weeks. Plant operators are optimistic over the summer market outlook. Oklahoma operators are quoting 2⅞ cents per gallon for 26-lb. natural and North Texas prices are firm on the basis of 2½ cents for the same material.

Another Advance Likely for Oil Products on East Coast

By J. P. O'DONNELL

NEW YORK, Apr. 8.—The beginning of the normal major consuming season for gasoline finds the East Coast market in a strong condition with further price improvement believed imminent. While prices in the New York Harbor area as a whole were unchanged at the end of last week, the reduced quantities of motor gasoline available at 6 cents per gallon indicated that quotations on material in the 72-74-octane range, advanced 0.5 cent in the past few weeks, would be raised again. One major supplier is asking 6.25 cents for motor gasoline in this range.

Increasing consumption is the principal factor in the motor-fuel improvement, but its strong statistical position and continued increasing transportation rates are also important factors. At the end of March, East Coast gasoline stocks were under 20,500,000 bbl., a decline of almost 500,000 bbl. from the previous week and almost 1,000,000 bbl. lower than on the corresponding date of last year. On the basis of demand, equivalent storage is much lower due to the higher consumption that has marked the current year.

Coastwise tanker rates held steady during the past week at 55 cents per barrel for gasoline, 58 cents for kerosene, and 62 cents for heating oil. Indications are that further advances will be made, but there are reports that an effort will be made to prevent not only the gasoline rate from going higher, but also to stabilize it at not greater than 50 cents per barrel. Since costs, despite recently increased seamen's wages, are not more than 20 cents per barrel, this represents a substantially profitable operation. Further advances, it is felt, may result in a federal investigation such as that which threatened in the winter of 1939-40 when all-time highs were established.

New York Harbor quotations on motor gasoline and branded motor fuel remained at 6 to 6.25 cents and 7.1 to 7.4 cents, respectively. Dealer tank-wagon and commercial-consumer prices in both metropolitan and suburban New York and western New York State were advanced. Socony-Vacuum Oil Co., Inc., raised the undivided-dealer price 0.4 cent and the commercial-consumer price 0.2 cent in four of the metropolitan boroughs and similar advances in the suburban districts. Both commercial tank-wagon and undivided-dealer prices were advanced throughout western New York. These advances ranged from 0.3 to 1.0 cent, depending on the local conditions.

The current price improvement in gasoline is heartening to East Coast refiners and distributors who have experienced a dismal period of low prices. Despite recent advances, prices still range from 20 to 25 per cent lower than a year ago. Distillate (No. 2) fuel oil and motor gasoline are approximately 25 per cent lower than prices at the corresponding period of 1941, while Bunker C fuel oil is off approximately 20 per cent. No. 2 fuel-oil prices during the past winter ran consistently lower than they were in the winter of 1939-40. Average Gulf Coast prices returned bare operating and raw-material costs to nonintegrated refiners and small profit to integrated companies. Fuel-oil prices during the past 6 months have been more favorable than those of gasoline.

Recent advances which brought No. 2 fuel oil up to 4.2 cents in the New York Harbor area is holding despite the decline in consumption due to warmer weather. This is attributed in part to the reduction in inventories that has been effected in recent weeks. Stocks on the East Coast were reduced more than 1,700,000 bbl. in the last 2 weeks of March. There have been some reports of price shading in heating oil but all major suppliers continue to quote 4.2 cents. The 0.5-cent per gallon increase in coastwise tanker rates has been the most important factor in fuel-oil-price advances on the East Coast but another contributing factor is the added strength on the Gulf Coast. Gulf prices have stiffened as a result of the reduced inventory situation there.

Kerosene, at 4.8 cents, and Bunker C fuel oil, at $1.25 per barrel, are unchanged on the East Coast. Some weakness has been reported in bunker oil but the combination of Gulf quotations and coastwise tanker rates make the prospect of lower prices improbable. Bunker C fuel is being held for a minimum of 80 cents at the Gulf and with tanker transportation costs in the neighborhood of 50 cents per barrel the current minimum in the New York Harbor area is below cost. Some suppliers are asking $1.35 for Bunker C fuel but the majority of transactions are being made on the basis of the lower figure.

None of the major products in the East Coast market has as yet exhibited the effect of the recent crude-oil advances. The effect of these advances will be transmitted to the East Coast through the Gulf, source of the bulk of crude oil and refined products consumed on the East Coast.

Quotations on wax were advanced 0.25 cent per pound in New York last week by some suppliers and now range from 3 to 3.25 cents. Continued demand for higher-melting-point grades accounts for the improvement which has resulted in more than 50 per cent increase in the past few weeks. Export inquiries have also stimulated the wax market.

The Pennsylvania lubricating-oil market also witnessed further improvement in the past week with 25-pour bright stocks being quoted at 15.5 cents by some refiners and marketers though others continue to quote 15 cents. While sales of lubricating oils have yet to meet expectations based on the increased industrial activity, the market is strong and better prices are held in prospect. Pennsylvania neutral, 25 pour, was

(Continued on Page 95)

Market Moves Upward Again on Gulf Coast

HOUSTON, Tex., Apr. 8.—Under the impetus of the general upward trend in crude and refinery markets, prices of Gulf Coast products continued to strengthen. Quotations on gasolines were advanced fractionally with cheaper material being removed from the market. Gasoline of 80 octane (research method) was advanced ⅛ cent during the week. Some material was sold at the higher price. Lower grades were quoted at corresponding higher levels. Kerosene prices were unchanged and demand continued inactive, but sources of supply were not anxious to move material and were declining to offer concessions, expecting improved markets.

Light fuel oils meeting No. 2 specifications were up ⅛ cent on the low side of the market. Apparently all 3⅛-cent quotations have been withdrawn, leaving 3¼ cents bottom for prompt shipment. Sellers reported some increase in inquiries although spot sales were scattered, and not large.

Heavy fuels also felt the effects of the upward momentum as prices on Bunker C held firm at 80 cents. Several offers of 78 cents were reported turned down.

General improvement is being shown in lubricating stocks.

A.P.I. Weekly Refinery Statistics

Week Ended April 5, 1941

	Capacity reporting (per cent)	Total gasoline stocks (bbl.)	Residual fuel-oil stocks (bbl.)	Gas oil and distillate stocks (bbl.)	Daily crude runs (bbl.)
East Coast	100.0	20,322,000	7,984,000	7,425,000	601,000
Appalachian	91.0	3,176,000	442,000	394,000	125,000
Ind., Ill., and Ky.	90.2	19,570,000	2,873,000	2,289,000	560,000
Okla., Kans., and Mo.	76.9	8,858,000	1,921,000	1,165,000	290,000
Inland Texas	59.6	2,266,000	1,398,000	326,000	112,000
Texas Gulf	89.2	15,842,000	7,066,000	5,190,000	846,000
Louisiana Gulf	97.6	3,431,000	2,227,000	1,019,000	135,000
N. Louisiana and Ark.	51.5	592,000	569,000	311,000	42,000
Rocky Mountains	56.0	1,750,000	461,000	171,000	47,000
California	87.3	16,298,000	68,785,000	10,044,000	508,000
Total reported	86.2	92,105,000	93,726,000	28,334,000	3,266,000
Est. unreported	.....	7,005,000	1,645,000	490,000	334,000
*Est. total	.....	†99,110,000	95,371,000	28,824,000	3,600,000
*Est. total previous wk.	.....	99,727,000	96,152,000	29,949,000	3,625,000
*April 6, 1940	.....	103,686,000	102,771,000	23,420,000	3,455,000

*Bureau of Mines. †Includes 6,527,000 bbl. aviation gasoline.

Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATE)

Week ended March 29, 1941	266,187,000 barrels
Week ended March 22, 1941	263,857,000 barrels
Week ended March 30, 1940	250,561,000 barrels

Figures do not include stocks of heavy, unrefinable California crude.

RETAIL OIL MARKETS...

Tank-wagon and filling-station prices on gasoline and kerosene furnished by larger marketing firms

Prices as of April 8, 1941

Taxes

The gasoline quotations given in the following tables include the 1½-cent federal tax, as well as state, county, and city taxes. The gasoline is the regular or standard grade. In most areas lower grades and a premium grade also are available.

Standard Oil Co. (Indiana)

	Gasoline			Kero.
	Tank wag.	Dlr.	Incl. tax	tank wag.
Chicago, Ill.	15.1	13.1	4.5	10.0
Decatur	15.1	13.6	4.5	8.5
Joliet	16.1	14.6	4.5	10.0
Peoria	16.1	13.7	4.5	10.0
Quincy	15.9	14.4	4.5	9.8
Davenport, Ia.	16.1	14.6	4.5	10.0
Des Moines	15.9	14.4	4.5	9.8
Mason City	16.3	14.8	4.5	10.2
Duluth, Minn.	16.9	15.4	4.5	10.8
Mankato	16.5	15.0	4.5	9.5
Minneapolis	16.5	14.7	4.5	10.4
LaCrosse, Wis.	17.5	16.0	5.5	10.4
Green Bay	17.9	16.4	5.5	10.8
Milwaukee	17.3	15.8	5.5	10.2
Detroit, Mich.	14.6	13.1	4.5	8.1
Grand Rapids	14.8	13.3	4.5	9.1
Saginaw	15.4	13.9	4.5	9.1
Evansville, Ind.	17.1	14.9	5.5	9.8
Indianapolis	17.3	15.3	5.5	10.0
South Bend	17.3	15.8	5.5	10.0
Fargo, N. D.	18.7	17.2	5.5	11.6
Huron, S. D.	18.0	16.5	5.5	10.9
Kansas City, Mo.	15.4	12.4	4.5	8.6
St. Louis*	15.2	13.7	4.5	9.6
St. Joseph	15.4	13.5	4.5	8.4
Wichita, Kans.	14.3	12.8	4.5	7.2

***State tax 2 cents, 1-cent city tax, and 1½-cent federal tax. †Does not include 4-cent state tax. ‡Does not include 3-cent state tax.**

Exclusive of state general sales taxes. Discounts to commercial consumers. On purchases per month off tank-wagon prices: 1,000 gal. or more, 1.5 cents off, minimum delivery 25 gal.

Stanolex Fuel Oil in Chicago

Effective Mar. 26, 1941, f.o.b. Chicago, tank-wagon prices: Standard heater oil, 1-99 gal., 8.75 cents; 100-149 gal., 7.75 cents; 150 gal. and over, 7.25 cents. Stanolex fuel oil No. 1, 1-99 gal., 8.25 cents; 100-399 gal., 7.25 cents; 400 gal. and over, 6.75 cents, Stanolex furnace oil, 1-99 gal., 8.25 cents; 100-399 gal., 7.25 cents; 400 gal. and over, 6.75 cents. Stanolex fuel oil A, 1-399 gal., 6.0 cents; 400-790 gal., 5.0 cents; 800 gal. and over, 4.75 cents. Stanolex fuel oil B, 1-399 gal., 6.0 cents; 400-799 gal., 5.0 cents; 800 gal. and over, 4.75 cents. Stanolex Bunker C fuel oil, 1-999 gal., 4.75 cents; 1,000 gal. and over, 3.75 cents.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline			Kero.
	Cons'r tank wag.	Dlvided dlr.	Incl. tax	tank wag.
Ohio points	16.0	15.0	5.5	*9.0

***Includes state tax of 1 cent.**

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline			Kero.
	Cons'r tank car	Dlr. tank wag.	Incl. tax	tank wag.
Atlantic City	11.30	12.60	4.5	7.4
Newark	11.30	12.60	4.5	7.4
Annapolis, Md.	12.85	14.35	5.5	9.5
Baltimore	12.25	13.75	5.5	8.0
Cumberland	13.65	15.15	5.5	10.0
Washington, D.C.	10.50	12.00	3.5	9.0
Danville, Va.	14.45	16.95	6.5	9.0
Norfolk	13.25	15.75	6.5	9.5
Petersburg	13.55	16.05	6.5	10.5
Richmond	13.55	16.05	6.5	10.5
Roanoke	14.75	17.25	6.5	10.0
Charles'n, W. Va.	14.05	16.55	6.5	11.5
Parkersburg	13.35	15.85	6.5	11.2
Wheeling	14.35	15.40	6.5	11.8
Charlotte, N. C.	16.40	16.50	7.5	9.8
Hickory	16.95	18.45	7.5	9.7
Mt. Airy	16.80	16.00	7.5	10.4
Raleigh	16.15	17.00	7.5	9.7
Salisbury	16.45	15.50	7.5	10.1
Charleston, S. C.	14.25	16.75	7.5	9.25
Columbia	15.10	17.60	7.5	(*)
Spartanburg	15.80	18.30	7.5	(*)

Price basis to Essolene undivided dealers: Dealer tank-wagon price less 0.5 cent per gallon. Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at a time by hose connection, on yearly purchases: From 2,500 to 100,000 gal., consumer tank-wagon price at time and place of delivery: 100,000 gal. per year, consumer tank-car price plus 0.5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less 0.5 cent per gallon.

Effective January 16, 1939, in North Carolina the commercial consumer schedule became as follows: Single deliveries of 50 gal. or more, consumer tank-wagon price. Single deliveries of less than 50 gal., 4 cents per gallon over consumer tank-wagon price. Generally the posted consumer tank-wagon price will be equivalent to the dealer price, less 0.5 cent per gallon. The above policy also applies in South Carolina, effective January 23, 1939.

***Kerosene business of the company at these points now exclusively handled by dealers.**

Southern District

STANDARD OIL CO. (KENTUCKY)

	Gasoline			Kero.
	Cons'r tank wag.	Net dlr.	Incl. tax	tank wag.
Atlanta, Ga.	16.5	16.5	7.5	10.0
Augusta	16.5	16.5	7.5	9.5
Macon	16.5	16.5	7.5	9.0
Savannah	15.5	15.5	7.5	9.0
Birmingham, Ala.	16.5	16.5	8.5	8.0
Mobile	17.0	17.0	9.5	8.0
Montgomery	18.0	18.0	9.5	10.0
Jackson, Miss	13.0	13.0	7.5	9.0
Vicksburg	15.5	15.5	7.5	8.5
Jacksonville, Fla.	16.5	16.5	8.5	8.0
Miami	16.5	16.5	8.5	8.0
Pensacola	17.0	17.0	9.5	8.0
Tampa	16.5	16.5	8.5	8.0
Lexington, Ky.	15.5	15.5	6.5	9.0
Covington	13.5	13.5	6.5	9.0
Louisville	15.0	15.0	6.5	8.5
Paducah	14.5	14.5	6.5	8.5

Price basis to tank-wagon consumers, effective January 4, 1937, 3 cents per gallon below tank-wagon price.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax, and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon: Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola, Fla., has a city gasoline tax of 1 cent. All are included in the table.

Pennsylvania and Delaware

ATLANTIC REFINING CO.

	Gasoline			Kero.
	Cons'r tank car	Dlr. tank wag.	Incl. tax	tank wag.
Philadelphia, Pa.	12.5	13.5	5.5	9.5
Pittsburgh	13.0	15.0	5.5	10.5
Allentown	13.0	14.5	5.5	10.5
Erie	12.5	15.0	5.5	10.0
Scranton	13.0	14.5	5.5	10.5
Altoona	13.0	15.0	5.5	10.5
Dover, Del.	...	14.0	5.5	10.5
Wilmington	...	13.5	5.5	10.0

Price basis to undivided dealers, dealer tank-wagon price less 0.5 cent per gallon.

Discount on kerosene, 2 cents per gallon off tank-wagon price on tank-wagon deliveries of 25 gal. or more at one time.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline			Kero.
	Tank truck	Serv. sta.	Incl. tax	tank wag.
San Francisco	16.5	17.5	4.5	11.5
Los Angeles	16.0	17.0	4.5	10.0
Fresno, Calif.	17.5	18.5	4.5	12.5
Phoenix, Ariz.	20.5	21.5	6.5	*17.5
Reno, Nev.	19.5	20.5	5.5	13.5
Portland, Ore.	19.0	20.0	6.5	13.5
Seattle, Wash.	19.0	20.0	6.5	13.5
Spokane	20.5	21.5	6.5	16.5
Tacoma	19.0	20.0	6.5	13.5

***Includes 5-cent state tax.**

Discount to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents. To commercial consumers: On tank-wagon price; on single deliveries of 40 gal. and over, advance quantity discount extended at time of delivery, 3 cents. Service-station schedule applies on single deliveries less than 40 gal. On kerosene in tank-car, transport-truck, and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank wagon.

March 18, 1939, split dealer discount was canceled.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline			Kero.
	Cons'r tank car	Dlr.* tank wag.	Incl. tax	tank wag.
Albany	13.4	13.6	5.5	7.3
Met. New York	13.0	13.4	5.5	7.5
Buffalo	13.5	13.7	5.5	8.0
Rochester	14.2	14.4	5.5	8.6
Syracuse	14.0	14.2	5.5	8.5
Portland, Me.	13.0	14.0	5.5	7.5
Manchester, N. H.	14.1	13.5	5.5	8.5
Burlington, Vt.	14.4	14.6	5.5	7.9
Boston, Mass.	11.6	11.8	4.5	7.5
Worcester	12.3	12.5	4.5	7.5
Hartford, Conn.	12.8	13.0	4.5	6.8
New Haven	12.2	12.4	4.5	6.8
Providence, R. I.	11.6	12.4	4.5	7.4

***Undivided.**

Effective August 8, 1940, the company changed its commercial consumer policy in New York and New England to the following:

Full compartment deliveries: Accounts buying less than 20,000 gal. annually, 0.5 cent above the commercial-consumer price; accounts buying from 20,000 to 120,000 gal. annually, commercial-consumer price; accounts buying 120,000 gal. annually and above, 0.25 cent off consumer price. Split compartment deliveries: Delivery of less than a full compartment, 250 gal., commercial-consumer price plus 1 cent. Steel-barrel deliveries: Commercial price plus 3 cents.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline		Kero.
	Tank wag.	Incl. tax	tank wag.
Denver, Colo.	13.0	5.5	10.5
Grand Junction	16.5	5.5	12.0
Pueblo	13.0	5.5	9.0
Casper, Wyo.	16.5	5.5	11.5
Cheyenne	13.0	5.5	11.0
Billings, Mont.	17.5	6.5	12.0
Butte	16.5	6.5	13.0
Great Falls	16.5	6.5	12.0
Helena	16.5	6.5	12.5
Salt Lake, Utah	16.0	5.5	14.0
Boise, Idaho	†18.6	6.5	16.0
Twin Falls	†19.6	6.5	16.5
Albuquerque, N. M.	*16.0	7.0	9.5
Roswell	*14.0	7.0	8.0
Santa Fe	‡17.0	7.5	9.5

***Includes city tax of 0.5 cent. †Includes toll-bridge tax of 1 mill. ‡Includes city tax of 1 cent.**

Tank wagon represents price to consumers. Dealer represents price to dealers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline			Kero.
	Cons'r tank car	Dlr. tank wag.	Incl. tax	tank wag.
New Orleans, La.	14.25	16.75	8.5	‡10.0
Baton Rouge	14.75	17.25	8.5	‡10.5
Alexandria	14.75	17.25	8.5	‡10.5
Lafayette	15.00	17.50	8.5	‡10.0
Lake Charles	14.75	17.25	8.5	‡10.0
Shreveport	14.00	16.50	8.5	10.0
Knoxville, Tenn.	18.00	20.00	8.5	12.5
Memphis	15.00	17.00	8.5	10.5
Chattanooga	17.50	17.35	8.5	12.0
Nashville	17.00	17.50	8.5	10.0
Bristol	18.25	18.25	8.5	12.0

Essolene at dealer price less 0.5 cent per gallon to undivided dealers.

‡Includes 1-cent state tax.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gal. or more in one territory take posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gal. at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less 0.5 cent per gallon. Kerosene prices include 1-cent state tax.

Effective February 24, 1939, the company reestablished in New Orleans the commercial consumer policy on motor fuel effective in the rest of the state.

Effective December 12, 1938, the company revised its commercial consumer policy on motor fuel in New Orleans, as follows: Single deliveries of less than 50 gal., consumer tank car plus 2 cents per gallon 50 to 199 gal., consumer tank car plus 1 cent per gallon; 200 gal. and over, consumer tank car plus 0.5 cent per gallon.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline		Kero.
	Tank wag.	Incl. tax	tank wag.
Texarkana, Ark.	13.5	5.5	6.0
Fort Smith	13.5	5.5	6.5
Little Rock	16.0	8.0	8.0
Muskogee, Okla.	12.5	5.5	7.0
Oklahoma City	11.5	5.5	6.5
Tulsa	11.5	5.5	6.0

Tank wagon represents price to consumers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline			Kero.
	Tank wag.	Dlr.	Incl. tax	tank wag.
Omaha	17.4	15.9	6.5	9.8
McCook	17.0	14.4	6.5	9.5
Norfolk	17.5	15.9	6.5	9.9
North Platte	17.8	16.0	6.5	10.2
Scottsbluff	17.4	15.0	6.5	10.8

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective January 1, 1935.

Texas

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Incl. tax	tank wag.
Dallas, Tex.	11.5	15.5	5.5	6.0
Fort Worth	11.5	15.5	5.5	7.0
Houston	12.0	16.0	5.5	8.0
San Antonio	12.5	17.0	5.5	8.0

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank wagon*
Oleum spirits	16.2
V.M.&P. naphtha	16.5
Cleaners' naphtha	15.5
Stanisol	15.5

***Prices include 3-cent Illinois tax but not 1-cent federal tax nor 2 per cent retail occupational tax.**

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gal. lots if covered by contract.

Canada

3-Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Gasoline		Kero.
	Tank wag.	Incl. tax	tank wag.
Halifax, N. S.	24.5	10.0	18.0
St. John, N. B.	24.5	10.0	18.0
Montreal, Que.	24.0	8.0	16.5
Toronto, Ont.	24.5	8.0	17.0
Hamilton, Ont.	24.5	8.0	17.0
Winnipeg, Man.	27.5	7.0	22.5
Brandon, Man.	28.0	7.0	22.5
Regina, Sask.	25.0	7.0	20.0
Saskatoon, Sask.	20.8	7.0	22.8
Edmonton, Alta.	25.9	7.0	20.0
Calgary, Alta.	23.0	7.0	18.0
Vancouver, B. C.	21.0	7.0	23.0

Tank-Wagon Changes

Standard Oil Co. (Indiana) advanced all normal and special tank-wagon prices to consumers and dealers on all three grades of motor gasoline 0.5 cent per gallon in Illinois, Indiana, Michigan, Wisconsin, Minnesota, North Dakota, South Dakota, Iowa, Missouri, and Kansas.

Continental Oil Co. advanced tank-wagon prices on all grades of gasoline 1 cent in Montana, effective March 24. The tank-wagon price on regular gasoline was reduced 2.5 cents at Pueblo, Colo., and third-structure motor fuel was reduced 1.5 cents there on March 26. All grades of gasoline were reduced 1.5 cents April 1 at Denver, Colo., and on the same day prices were advanced 0.5 cent per gallon in Oklahoma.

Socony-Vacuum Oil Co., Inc., advanced consumer tank-car prices on the dates, at the places and by these amounts: April 1, Albany, N. Y., 0.3 cents; April 2, New York, 0.2 cent; April 3, Rochester, N. Y., 0.4 cent; April 3, Syracuse, N. Y., 1 cent; April 2, Portland, Me., 0.3 cent; April 2, Manchester, N. H., 0.3 cent and April 1, Burlington, Vt., 0.3 cent. The company advanced undivided dealer tank-wagon prices as

(Continued on Page 95)

PRICES OF REFINED PRODUCTS...

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of April 8, 1941
(Most prices in cents per gallon)

The quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents a gallon on lubricating oils. Octane ratings in Middle West, Mid-Continent, and Southwest are based on A.S.T.M. method of testing.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
72-74 octane (regular)	.04⅞	.05
63-66 octane	.04½	.04⅞
60 octane and below	.04⅛	.04¼
60-62 400 grades:		
72-74 octane (regular)	.04⅞	.05
63-66 octane	.04½	.04⅝
60 octane and below	.04⅛	.04¼

NORTH TEXAS—

U. S. Motor grades:		
72-74 octane (regular)	.04⅝	.04¾
63-66 octane	.04¼	.04⅜
60 octane and below	.03⅞	.04
60-62 400	.03⅞	.04¾

NORTH LOUISIANA (Ark. and N. La. delivery)—

U. S. Motor grades:		
72-74 octane (regular)	.04⅝	.04¾
63-66 octane	.04¼	.04⅜
60 octane and below	.03⅞	.04

ARKANSAS (Ark. and N. La. del.)—

U. S. Motor grades:		
72-74 octane (regular)	.04⅝	.04¾
60 octane and below	.03⅞	.04

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
72-74 octane (regular)	.04¾	.04⅞
63-66 octane	.04⅜	.04½
60 octane and below	.04	.04⅛
60-62 400 grades:		
72-74 octane (regular)	.04¾	.04⅞
63-66 octane	.04⅜	.04½
60 octane and below	.04	.04⅛

PENNSYLVANIA (inland refineries)—

74-76 octane (regular)	.06
72-74 octane	.05¾

CALIFORNIA (domestic movement)—

58-60 400, 65 oct. and higher	.05½	.07
54-58 U. S. Motor	.04¾	.06¼

EAST COAST (domestic)—

U. S. Motor grades:		
New York (Bayonne)*	.05¾	.06
Philadelphia	.05½	.06¾
Boston	.05¾	.06¾
Baltimore	.05½	.05⅞
Charleston, S. C.	.05¾	.06

*All grades of gasoline ⅛ to ¼ cent less for barge shipments. New York Harbor prices are for New York and New England delivery. Prices for New Jersey delivery ¼ cent lower.

GULF COAST (domestic)—

U. S. Motor grades:		
72-74 octane (leaded)	.05	.05¼
70-72 octane (unleaded)	.05⅛	.05¼
68-70 octane (unleaded)	.05	.05⅛
Below 68 octane (unleaded)	.04¾	.05

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70	.02¾
Grade 18-55	.03¼
NORTH TEXAS—	
Grade 26-70	.02½
Grade 18-55	.02¾
CALIFORNIA—	
75-85 375-390	.04½ .05¼
NORTH LOUISIANA (Ark. and N. La. delivery)—	
Grade 26-70	.02½

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 l.b.p., 110-flash, 540-550 e.p.	.03½	.03⅝
41-43 gr., 300-320 l.b.p., 110-125 flash, 500-520 e.p.	.03⅝	.03¾
46-48 gr., 210-230 l.b.p., 480-max., e.p.	.03⅞	.04

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

42-44	.04¼	.04⅜
41-43	.04⅛	.04¼

NORTH TEXAS—

41-43	.04	.04⅛

NORTH LOUISIANA (Ark. and N. La. delivery)—

41-43	.04	.04⅛

ARKANSAS (Ark. and N. La. del.)—

41-43	.04	.04¼

PENNSYLVANIA (inland refineries)—

46	.05¼	.05½
45	.05⅛	.05¼

CHICAGO (Based on Group 3)—

42-44	.04¼	.04⅜
41-43	.04⅛	.04¼

CALIFORNIA (Pac. Coast market)—

38-40 high-burning test	.04½	.05½

NEW YORK (Bayonne, N. J.)—

41-43	.048

GULF COAST (domestic)*—

41-43	.03⅜

*Barge price ⅛ cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

Range oil	.03⅞	.04⅛
No. 1 prime white, 38-42	.03¾	.04
No. 1 straw, 38-40	.03¾	.04
No. 2 straw, 32-36	.03⅝	.03½
No. 3 zero to 10, 28-32	.03¼	.03⅜

NORTH TEXAS—

No. 1 prime white, 38-42	.03¾	.03⅞
No. 1 straw, 38-40	.03⅝	.03¾

NORTH LOUISIANA (Ark. and N. La. delivery)—

No. 2, 32-36	.03½	.03⅝

ARKANSAS (Ark. and N. La. del.)—

No. 2, 32-36	.03½	.03⅝

CHICAGO (Based on Group 3)—

Range oil	.03⅞	.04⅛
No. 1 prime white, 38-42	.03¾	.04
No. 2 straw, 32-36	.03⅜	.03½
No. 3 zero to 15, 28-32	.03¼	.03⅜

NEW YORK (Bayonne, N. J.)—

*No. 1	.048
*No. 2	.042
*No. 3	.042

*Barge deliveries ⅛ to ⅛ cent under above tank-car price.

Gas Oil and Fuel Oil

(Gas oil per gal., fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil, under 35	.03⅛	.03¼
No. 5, low pour point, 18-22	.75	.80
No. 6, 15 and above, 8-14	.60	.65

NORTH TEXAS—

U.G.I. gas oil, under 35	.03	.03⅛
No. 5, low pour point, 18-22	.75	.80
No. 6, 15 and above, 8-14	.60	.65

NORTH LOUISIANA (Ark. and N. La. delivery)—

10-14 fuel oil, industrial	.70

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.03⅛	.03¼
No. 5, low pour point, 18-22	.75	.80
No. 5, 15 and above, 18-22	.60	.70
No. 6, low pour point, 10-16	.60	.70
No. 6, 15 and above, 8-14	.60	65

PENNSYLVANIA (inland refineries)—

36-40	.04½	.05

CALIFORNIA—

Los Angeles:		
30-40 gas oil, per bbl.	1.10	1.25
24 plus diesel, per bbl.	1.10	1.25
24 plus diesel (bunkers)	1.20	1.35
12-16 (bunkers at tidewater)	.65	.75
10-16 (cargo lots)	.65	.75
12-17 (tank cars)	.60	.85
10-17 (high sulfur)	.45	.60
San Joaquin Valley:		
10-18 (tank cars)	.50	.70
24 plus diesel, per bbl.	1.10	1.25
San Francisco:		
24 plus diesel, per bbl.	1.35	1.40
24 plus diesel (bunkers)	1.40	1.50
10-16 (bunkers)	.75	.80

GULF COAST—

No. 2 fuel		.03¼
43-47 diesel	.03¼	.03⅜
48-52 diesel	.03⅜	.03⅝
53-57 diesel	.03½	.03⅞
58-and-above diesel	.03⅝	.03¾
Diesel bunkers		1.40
Bunker C (bulk cargoes)		.80
Bunker C (bunkers)		.80

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil		.044
28-30 diesel (lighterage 6¼c per bbl.)		1.75
28-30 diesel (tank cars)		.045
Bunker C (to ocean-going ships in N. Y. Harbor)		1.25
Industrial fuel (tank cars)	.0315	.035

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

200-210 D, 10-25	.19
150-160 D, 0-10	.14½
150-160 D, 10-25	.14
100-110 D, 0-10	.14
100-110 D, 10-25	.13½
Steam refined:	
600 dark green (untreated)	.08

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):		
10 pour point		.17½
15 pour point		.16½
25 pour point		.15
Steam refined:		
600	.09	.10
650	.09½	.11
600 flash	.10	.12
630 flash	.11	12

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

0-10 pour point:		
150-3		.08½
180-3		.09
200-3		.09
250-3		.10½
280-3		.11
280-4		.10½
300-3½		.11½
350-3½		.12
400-3½		.12½
500-3½		.13
600-3½		.13½
100-2½ paraffin oil 10-25		.05¾
10-25 pour point:		
200-3		.08½
250-3		.10
280-3		.10½
280-4		.10

GULF COAST—

Pale oils:		
100-3	.05½	.05¼
200-3	.07½	.07¼
300-3	.07½	.07¾
500-3½	.08¼	.08½
750-3½	.08⅝	.08¾
1,200-3½	.08¾	.08⅞
2,000-4		.09
3,000-4		.10½
Red oils:		
200-5-6	.06⅞	.07
300-5-6	.07¼	.07½
500-5-6	.08	.08¼
750	.08⅜	.08½
1,200-5-6	.08½	.08⅝

CALIFORNIA (moving to dom. market)—

Pale oils:		
100-2½-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¼	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red oils:		
200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¼	.11½
700-6½ plus	.09¼	.11½
750-6½ plus	.09¼	.11½
900-6½ plus	.09¼	.11½

PENNSYLVANIA—

150 vis. at 70° F., 3 color, 400-405 flash:	
Zero pour point	.25½
10 pour point	.24½
15 pour point	.23½
25 pour point	.21
200 vis., at 70° F., 3 color:	
Zero pour point	.27½
10 pour point	.26½
15 pour point	.25½
25 pour point	.23

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (A.m.p.) w.c. scale	.02¾	.03

PENNSYLVANIA (inland refineries)—

122-124 (A.m.p.) w.c. scale	.03	.03¼
124-126 (A.m.p.) w.c. scale	.03	.03¼

NEW YORK—

Wax in bags fully refined:		
125-127 (A.m.p.) wax		.0560
128-130 (A.m.p. wax		.0560
130-132 (A.m.p.) wax		.0585
133-135 (A.m.p.) wax		.0615
135-137 (A.m.p.) wax		.0640
Crude scale:		
124-126 (A.m.p.) w.s.	.03	.03¼
124-126 (A.m.p.) y.s.	.03	.03¼
Petrolatum in barrels, carload lots:		
Dark green	.02500	.02625
Amber	.02375	.02875
Extra amber	.02625	.03250
Lily white	.04375	.05125
Snow white	.05125	.06125
Cream	.03375	.04125

Export Prices

GASOLINE

GULF COAST—

60-62 400	.04¼	.05½
61-63 390	.04½	.05½
64-66 375	.04½	.05¼

LOS ANGELES—

U. S. Motor grades:		
Above 69 octane	.05½	.05¾
65-69 octane	.05¼	.05½
60-65 octane	.04½	.05

KEROSENE

GULF COAST—

41-43 water white	.03⅜	.03½

LOS ANGELES—

41-43 water white	.05	.05¼

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.a.s. in bbl.)—

Cylinder stocks:	
600 S.R. unfiltered	.18
630 S.R. unfiltered	.18¼
600 flash, S.R.	.18½
650 flash, S.R.	.20
Bright stock:	
Light, 25 pour point	.22

NEUTRAL OIL

200-3 color	.30
150-3 color	.27½

PARAFFIN WAX

NEW YORK (prices per lb.)—

123-125 A.m.p.		.0560
125-127 A.m.p.		.0560
128-130 A.m.p.		.0585
133-135 A.m.p.		.0615
135-137 A.m.p.		.0640
Crude scale:		
124-126 w.s.	.03	.03¼
124-126 y.s.	.03	.03¼

MARKET RECORD OF ACTIVE OIL STOCKS . . .

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Member New York Stock Exchange and New York Curb Exchange

New York Stock Exchange

1941 High	1941 Low	Week ended Apr. 5 High	Week ended Apr. 5 Low	Week ended Apr. 5 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1940	Com. sh. earn. 1939	Com. sh. earn. 1938	1940 High	1940 Low	1939 High	1939 Low
52	44	52	48⅝	51½	Amerada Corp.	788,675	N.P.	50cQ	1-31-41	$2.00	$1.56	$2.07	58½	38½	74½	50
24¼	20¾	23⅞	22⅝	23⅞	Atlantic Refining	2,663,999	$25	25cQ	3-15-41	1.00	1.66	1.40	27⅛	18¼	24¾	18⅛
10½	8	9½	8¾	9	Barber Asphalt Co.	390,223	$10	25c	5-21-40	.50	1.39	—.85	16⅝	8½	21	10¼
9⅝	7⅝	9⅜	8⅛	9	Barnsdall Oil Co.	2,558,779	$5	15c	3-10-41	.60	.76	1.26	13⅜	7⅛	19½	11⅛
6¼	5⅜	6¼	5⅜	6⅛	Consolidated Oil Corp.	13,751,726	N.P.	12½cQ	2-15-41	.72½	.55	.55	8⅛	5½	9⅞	6½
20½	17⅜	20¼	18⅛	19⅞	Continental Oil of Delaware	4,682,572	$5	25cQ	3-31-41	1.00	1.35	1.10	25	16⅛	31½	19⅞
4½	3½	4¼	3⅝	4¼	Houston Oil	1,098,618	$25	....	10-17-30	....	.43	.83	6⅞	3⅜	9⅜	4½
11⅜	9¾	10⅝	10	10⅝	Lion Oil Refining	435,815	N.P.	25cQ	4-15-41	1.00	1.50	2.09	14⅜	9	18⅛	10
15½	13	15½	14	15	Mid-Continent Petroleum	1,857,912	$10	40c	12-2-40	.80	1.42	.56	17⅜	11½	18	11⅛
11	9⅜	10⅜	9¾	10½	Mission Corporation	1,378,645	$10	25c	12-20-40	.25	.87	1.04	11⅜	7⅛	14⅞	8⅜
6⅝	4⅞	5¾	5	5½	National Supply	1,155,517	$10	....	12-22-37	....	—.87	—.79	9¾	4⅝	15½	5⅝
8⅜	6¾	8⅜	7⅛	7¾	Ohio Oil Co.	6,563,377	N.P.	25c	12-14-40	....	—.10	.25	8¾	5⅜	10½	6
7¾	5½	7¾	6¾	7¼	Pacific Western Oil	1,000,000	N.P.	40c	12-19-39	....	.81	1.22	8⅞	5½	11⅞	7
10	7¼	10	8½	10	Pan American Pet. Trans.	4,702,945	$5	25c	12-21-40	.25	1.10	.08	10½	6⅜	8⅜	5
41¼	35¾	39⅛	38	38⅞	Phillips Petroleum	4,449,052	N.P.	50cQ	3-1-41	2.00	2.21	2.03	41¾	27⅛	46½	31¼
16⅞	14⅜	15½	14⅞	15¼	Plymouth Oil Co.	1,038,633	$5	30c	3-31-41	‡1.30	2.38	2.59	22¾	15	24	17⅛
9⅛	7	9⅛	7⅞	9	Pure Oil Co.	3,982,031	N.P.	25c	12-20-40	.25	1.11	.38	11½	6¾	11⅜	6⅛
9	7¼	9	8⅜	8⅞	Richfield Oil Corp.	4,010,000	N.P.	50c	12-21-40	.50	.65	.51	9¼	5⅞	10¼	6⅝
15⅜	12½	14⅞	13½	14⅞	Seaboard Oil of Delaware	1,244,383	N.P.	25cQ	3-15-41	1.00	1.40	1.52	20	11	24⅜	15½
13	10⅛	13	11½	12⅞	Shell Union Oil	13,070,625	N.P.	50c	12-20-40	.75	.77	.72	13⅛	7⅝	17¼	9⅞
24⅛	18⅞	24⅛	22	23⅝	Skelly Oil	995,349	$15	50c	12-20-40	1.25	1.99	2.27	23¼	12¼	29½	15½
9½	8¼	9½	8⅞	9⅜	Socony-Vacuum	31,206,071	$15	25cSA	3-15-41	.50	1.10	1.29	12½	7⅛	15⅛	10¼
21¼	17⅞	21¼	20	21	Standard Oil of California	13,003,953	N.P.	25cQ	3-15-41	1.00	1.38	2.22	26⅛	16¼	33⅝	24¼
28¾	25½	28¾	27⅛	28⅝	Standard Oil (Indiana)	15,272,020	$25	25c	3-15-41	1.50	2.23	1.82	29	20⅜	30	22¾
36½	33	36½	35	36⅜	Standard Oil of New Jersey	27,280,998	$25	75c†	12-16-40	1.75	3.26	2.86	46½	29⅞	53½	38
39	34¼	39	37¾	39	Standard Oil of Ohio	753,740	$25	37½c	3-15-41	2.00	6.64	1.81	41¾	26¼	32¾	17
58¾	51	53⅝	51½	53⅝	Sun Oil	2,434,863	N.P.	25cQ§	3-15-41	*1.00	2.74	1.07	65⅞	46¾	66	45¾
1¾	1⅜	1¾	1⅜	1¾	Superior Oil Corp.	1,388,979	$1	10c	12-28-40	.10	.04	.24	2½	1⅛	3⅝	1⅜
40¼	34½	38⅜	36¼	38⅜	Texas Corp.	10,876,139	$25	50cQ	4-1-41	2.00	3.02	2.13	47⅝	33	50¾	32½
3⅜	2⅞	3¼	3	3¼	Texas Gulf Producing Co.	888,147	N.P.	10c	12-14-40	.20	.69	.86	4¼	2½	5¾	3¼
6¼	5¼	6¼	5½	6¼	Texas Pacific Coal & Oil	888,236	$10	10c	3-1-41	.40	1.00	1.16	8⅝	5⅜	11⅜	7
10½	9⅜	10½	9½	9⅞	Tide Water Associated	6,371,827	$10	15c	3-3-41	.70	1.05	1.28	12	8¾	14¼	9½
14½	12¾	14¼	13	13¾	Union Oil Co. of California	4,666,270	$25	25c	2-15-41	1.00	1.25	1.47	17½	12	19¾	15⅛
29¾	25⅝	27⅞	27⅝	27⅞	Union Tank Car Co.	1,177,381	N.P.	50c	3-3-41	1.75	2.07	1.16	29⅞	22¾	24¼	20⅛
1⅞	1⅝	2⅛	1⅝	2⅛	Wilcox Oil & Gas	470,768	$5	10c	2-15-40	....	.77	.52	3⅝	1¾	4¼	2⅜

*Also 5 per cent in stock. †Includes extras. ‡Also 2 per cent in stock. §Also 6 per cent in stock. —Deficit.

New York Curb Exchange

1941 High	1941 Low	Week ended Apr. 5 High	Week ended Apr. 5 Low	Week ended Apr. 5 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1940	Com. sh. earn. 1939	Com. sh. earn. 1938	1940 High	1940 Low	1939 High	1939 Low
7	5⅛	6¼	5⅝	6	American Republics Corp.	1,308,049	$10	25c	12-18-40	....	$0.14	—$0.22	10¾	4½	11¾	5½
1¾	1¼	1⅜	1¼	1⅜	Bridgeport Machine Co.	263,700	N.P.	$1.25	12-30-37	....	—.95	—.14	3¼	1⅜	7¼	2½
40¼	36½	38¾	38¾	38¾	Buckeye Pipe Line Co.	200,000	$50	$1	3-15-41	$4.00	3.13	2.36	43	28	34¾	26½
110¼	103¾	107	106	106	Chesebrough Mfg. Co.	120,000	$25	$1.50Q†	3-31-41	6.00	7.87	5.32	117	95	130	108⅝
5⅛	3¾	4¾	4⅜	4⅜	Cities Service (new)	3,703,978	$10	....	6-1-32	....	.68	.23	6¾	4	9¼	4¼
1⅛	⅝	1⅛	⅞	1⅛	Cosden Petroleum	465,332	$1	....	.....	....	....	....	2⅛	⅝	2¼	⅛
15¼	12½	14½	13	14¼	Creole Petroleum	6,974,356	$5	50cSA†	12-16-40	1.00	1.38	1.64	24¼	11⅝	28	16⅜
5	3¾	5	4¾	5	Darby Petroleum	351,390	$5	25cSA	1-15-39	....	.03	.69	4⅜	2⅞	7⅛	3⅝
1⅛	1	1⅛	1⅛	1⅛	Derby Oil & Refining	263,162	N.P.	....	.....	....	—.37	—.91	2	¾	2⅝	1⅛
28¾	21¼	22	22	22	Eureka Pipe Line	50,000	$50	$3.50†	2-1-41	2.25	.63	—.37	31	20¼	23	15⅛
33½	29	31⅞	29¾	31½	Gulf Oil Corp.	9,076,202	$25	25cQ	4-1-41	1.25	1.69	1.43	39⅞	25⅛	45⅛	29¼
63	53¼	56	53⅝	55⅝	Humble Oil & Refining	8,987,840	N.P.	37½c	4-1-41	2.00	3.33	3.98	68	47⅛	71	52½
7	5¾	7	6½	7	Imperial Oil of Canada	26,965,078	N.P.	25c	12-2-40	.62½	.71	.96	12⅝	5⅜	17	11⅝
3⅞	3⅛	3⅛	3⅛	3⅛	Indiana Pipe Line	300,000	$7.50	20c	11-15-40	*2.80	.33	.47	7¾	3	7¼	5½
10¾	8⅞	10⅜	9½	10⅜	International Petroleum	14,324,088	N.P.	30c	12-21-40	1.25	1.19	1.98	10¾	8¼	27½	17
2⅝	1¾	2⅛	2⅛	2⅛	Kirby Petroleum Co.	500,000	$1	10c	3-15-41	....	.06	.14	2¾	1⅝	3¾	2⅛
10⅛	9⅜	9⅞	9½	9½	Lone Star Gas	5,518,347	N.P.	20c	4-22-41	.70	.98	.88	10¾	7⅝	10½	7⅛
4¾	4⅛	4¾	4¼	4¾	Louisiana Land & Exp.	2,966,762	$1	10c	3-15-41	.35	.22	.45	6¼	3¾	7¾	4
10	9½	..	..	..	Margay Oil Corp.	149,943	N.P.	25cQ	4-10-41	1.00	1.52	2.28	17	9¼	17	14½
8	7	7½	7¼	7½	Midwest Oil Co.	998,474	$10	45c	12-16-40	.90	.99	.93	8½	6½	8¾	6⅝
5¾	5⅛	5⅝	5⅝	5⅝	Mountain Producers	1,593,584	$10	30cSA	12-16-40	.60	.70	.62	6¼	4⅞	6	4⅞
12⅜	11	11¾	11½	11¾	National Fuel Gas	3,810,183	N.P.	25cQ	1-15-31	1.00	.95	.84	13⅛	10	14	11¼
12⅜	10¼	10⅞	10½	10⅞	National Transit	509,000	$12.50	50c	12-16-40	1.00	.91	.88	12½	8¾	9½	7¼
1¼	1	1⅛	1⅛	1⅛	New Mexico and Arizona	1,000,000	$1	1c	12-1-37	....	.02	.02	1¼	¾	1¾	1
8	6⅝	..	..	..	New York Transit	100,000	$5	30c	5-15-41	.60	.88	.16	7¾	5¼	6	4
9¾	8	7¾	7¾	7¾	Northern Pipe Line	120,000	$10	40c	12-2-40	.80	.31	.24	9⅞	6	7	4½
3⅞	2⅝	3¾	3⅜	3¾	Pantepec Oil	2,856,872	$1	....	.....	....	....	....	5½	2½	7⅝	4
1½	1	1½	1⅜	1½	Root Petroleum Co.	336,045	$1	25c	2-1-37	....	.70	.17	3¼	1	5	1¼
2½	2⅛	2⅝	2⅜	2⅝	Ryan Consolidated	298,931	N.P.	10c	12-28-40	....	.16	.29	3	1½	3	1⅞
8	6½	..	..	..	Southern Pipe Line	100,000	$10	25c	3-3-41	.50	.25	—.27	11¾	4¾	4⅞	3½
39¾	37	38	37⅞	38	South Penn Oil	1,000,000	$25	37½c	3-28-31	2.50	2.84	1.44	44	28	40½	26¾
30½	24½	..	..	..	Southwest Penna. Pipe Lines	35,000	$50	50c	4-1-41	6.50	2.06	—.41	35	21	23	18
20⅜	18	18¾	18⅜	18¾	Standard Oil of Kentucky	2,604,790	$10	25c	3-15-41	1.30	1.53	1.45	20⅞	16½	20⅛	17¼
1¾	1⅜	1¾	1½	1¾	Sunray Oil	1,975,876	$1	5c	12-20-40	.10	.25	.23	2	1⅜	2⅜	1⅜
3¼	2¾	3¼	2⅞	3¼	Texon Oil & Land	936,024	$2	10c	12-30-40	40	.49	.56	3⅛	2	4	2⅝
2¾	2¼	2½	2½	2½	Transwestern Oil Co.	750,000	$10	....	.....	....	—1.42	.12	3⅜	2	6	2⅛
1/16	1/16	1/16	1/16	1/16	United Gas Corp.	7,818,959	$1	....	.....	...	—.55	—.51	2⅛	¾	3⅜	1⅛

*Includes $2.50 capital distribution. †Includes extras. —Deficit.

EQUIPMENT PROGRESS...

Brewster Traveling Block Designed for Portable Rigs

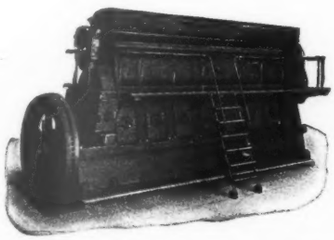
Brewster engineers have taken into consideration all of the problems of a portable rig when designing its three-sheave Model C-60. Concave top is designed to conform with curve of crown-block sheaves, thus enabling this Brewster "Compact 60" traveling block to be raised to the very maximum height. Its dimensions are: Maximum width of side 27½ in., maximum width of face 17¾ in., and overall height, including bail, 42 in.

Sheaves are 26 in. in diameter with flame-hardened grooves ground for A.P.I. line. Exceptional stability is attained by mounting each sheave on double rows of tapered roller bearings. Each set of bearings is individually lubricated through Alemite fitting in the pin. Other specifications are: Main pin is S.A.E. 4140 heat-treated steel, 5-in. diameter; two becket pins 1⅜-in. diameter; two bail pins 2¼-in. diameter: S.A.E. 4140 bail 5 by 3½ in. at yoke, with 6½-in. opening between block; capacity 60 tons; weight of Model C-60, approximately 1,500 lb.

Chicago Pneumatic Offers New Type 16 CP Diesel Engine

Chicago Pneumatic Tool Co., 6 East Forty-fourth Street, New York, has announced a new Type 16 CP heavy-duty diesel engine, available in three to eight cylinders from 375 to 1,000 hp. and convertible to gas. Latest developments in construction, improved design and combustion control are incorporated in the new Type 16 CP diesel. The engine is of the four-cycle direct injection type, especially designed for continuous duty. Its salient features include greater fuel economy, its construction insures long life and low maintenance, all wearing part are completely enclosed, and it is 100 per cent positively and automatically lubricated.

The combustion-chamber shape, the location of the inlet valve and the fuel-injection system are correlated



to give great combustion efficiency. The valve passage promotes a rotary swirl during the intake stroke, and the piston on the compression stroke displaces the outer ring of air in the combustion chamber, in, toward the fuel nozzle. This complete mixing of fuel and air results in a clean exhaust at all loads, and a fuel economy that sends operating costs down.

Every part has ample strength, and material has been effectively placed to give maximum rigidity with minimum weight. The base is heavily ribbed under the bearings and a deep section at each side imparts longitudinal stiffness. A-frames are of high-tensile-alloy iron. Crankshaft journals and crankpins are unusually large to prevent any possible difficulties from torsional vibration. A silent chain drive is mounted at the flywheel end giving a quiet, constant-speed drive for the camshaft and auxiliaries. Removable valve cages, babbitt bearings, stressed studs and bolts of nickel-chrome steel, and high-tensile-alloy iron castings all contribute to a superior construction.

The Type 16 CP engine is provided with a complete automatic lubrication system so that no part of this modern engine requires hand oiling. The engine-driven gear pump in the base draws oil from the supply sump, forcing it through a filter and oil cooler and then into the main supply pipe cast into the base. From the main supply pipe, oil is carried to the main bearings through drilled passages. From the main bearings, oil is conducted through drilled passages in the crankshaft to the crankpin bearings; from the crankpins, oil is forced up the rifle-drilled connecting rods to the piston pins.

A secondary oiling system provides lubrication of the camshaft and valve gear. The camshaft trough serves as the sump and a gear-type pump forces oil through a supply pipe adjacent to the camshaft and then through smaller branch pipes to the rocker-arm pivot. Drilled passages in this pivot conduct the oil to the rocker-arm bearings. Two passages lead from the rocker-arm bearings. Oil is then carried down the drilled push rod to the cam followers. The camshaft journals are lubricated direct from the supply pipe.

Cylinder lubrication is provided by two force-feed lubricators driven from the camshaft and enclosed under the camshaft covers.

New Wire-Rope-Making Machine Has Automatic Features

Under the heading "To Serve You Better," the A. Leschen & Sons Rope Co., St. Louis Mo., has recently announced the installation of a large new wire-rope-making machine which it states is the last word in equipment of its kind. It is also stated that the design of this machine is such that, automatically, there is precise control of every stage in its operation. While this new wire rope "closer" is a giant in size, more emphasis is placed on its ability to produce wire rope that will accurately meet definite and predetermined requirements, than on its actual capacity.

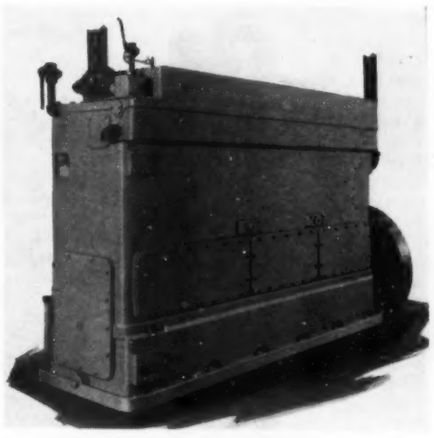
The A. Leschen & Sons Rope Co. is manufacturer of the well-known "Hercules" (Red Strand) wire rope, which is made in both round-strand and flattened-strand constructions—in either the standard or preformed type. For many years this company has designed most all of its wire-rope-making machinery, and much of it has been built in its own shops.

TRADE LITERATURE

BROWN INSTRUMENT CO., Wayne and Roberts Avenues, Philadelphia, Pa.—Catalog No. 9400, "Brown New-Matic Remote Transmission." This catalog tells "how," "why," "when," and "where" the New-Matic remote transmission may be applied for indicating, recording, and control of temperature, pressure, flow, and liquid level in hazardous atmospheres where the use of electrical transmission is not desirable nor permissible. Operating features and description of the principal working parts of the transmitting and receiving instruments are given in detail. Large, clear photographs show the interior and exterior of the instruments and schematic diagrams illustrate how they are applied for indicating, recording, and control applications. Also described and illustrated in the catalog are accessories, drilling and mounting dimensions, recorder, flow, liquid-level, temperature, and pressure charts.

Heavy-Duty Medium-Speed Enclosed Gas Engines

To meet a growing demand for lighter, more compact, heavy-duty gas engines, the Bruce-Macbeth Engine Co. has brought out a series of engines of com-



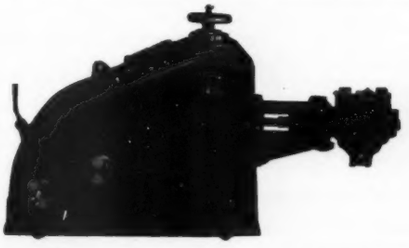
paratively light, modern, streamline design, known as Type G. Their performance under varying conditions assures long life and general dependability which has characterized Bruce-Macbeth engines for over 40 years.

Outstanding among the features of these engines is the utilization of the patented Bruce-Macbeth method of cooling (without a water jacket). This system has proved itself to be exceptionally efficient in thorough and uniform cooling, and it retards the formation of scale which often presents a serious problem in water-jacketed engines. All parts which require cooling are submerged, yet visible and accessible. Overflow pipes maintain a constant required water level and provide for complete circulation and a uniform engine temperature. A simple and dependable air starting system is provided.

Bruce-Macbeth gas engines are conservatively rated, provide liberal horsepower reserve, operate on gas of any heat value from 125 to 3,000 B.t.u. per cu. ft., without variation of efficiency. Type G engines are available in 6-cylinder model at 180 hp., 4-cylinder at 120 hp., and 3-cylinder at 90 hp.

Line of Proportioning Pumps Announced by Transmission

The Transmission Engineering Co., 259 Second St., San Francisco, Calif., announces its entry into production of the new streamlined and weatherproof LAB



proportioning pumps under a license agreement with the Shell Development Co., which has used these for a number of years and which holds the patents on the design.

As illustrated, all working parts are totally enclosed in a cast-iron, sealed housing with a built-in, sub-

merged lubricating system, having an external oil-level indicator. With the horizontal pumping end removed from all other working parts, the units can be economically furnished in any required alloy. Any number of units can be connected in parallel to a single driving motor and a clutch mechanism permits the release of any unit without interrupting the service.

Length of stroke is adjusted from maximum to minimum by merely turning the hand wheel, with an indicating mechanism showing the relative capacity. Sizes have been developed to cover a range of capacities varying from zero to 360 gal. per hour and for pressures to 300 lb.

Larkin Introduces New Type Forged-Steel Tubing Hanger

Larkin Packer Co., St. Louis, Mo., has introduced a new forged-steel tubing hanger, developed to provide a safe means of supporting and packing a tubing string

in a Berry pattern casing head. The assembly, illustrated here, is made up of heavy steel forgings and employs the same slips as used in other Larkin tubing heads.

Besides the employment of forged-steel parts, this new hanger offers numerous other advantages. The top nut has plenty of tong room, and is threaded 1½ in. long with 8 pitch "Zincoted" straight V-threads. The hanger has split-steel ring, ¼-in. thick, between top nut and rubber packing, providing added safety against blowouts, eliminating friction between top nut and packing, and preventing tearing or cutting of the split packing when screwing the top nut.

Two split packing rubbers permit staggering the splits to give a better, pressure-tight sealoff with less weight on the packing, thereby lengthening the useful life of the packing. The packing is installed above the slips so that it may be replaced without disturbing tubing or surface connections. This construction allows the packing effect to be controlled independent of the tubing weight, since none of the tubing weight rests on the packing.

A heavy spring, fitted into a groove around the slips, holds the three segments in alignment to provide a flat surface for the packing and also to prevent cutting or pinching the tubing. Because the slips are 4 in. long, and accurately machined and hardened, they support extremely long tubing strings with a wide margin of safety. Removable slip handles are provided for convenience in landing or adjusting the tubing.

The heavy forged-steel body is available for casing sizes from 5½-in. o.d. through 8⅝-in. o.d. All other parts—slips, packing, steel ring, and top nut—are interchangeable in the various size bodies, and are made to suit either 2 or 2½-in. regular or upset tubing.

New Oil-Field Engine Coolers Announced by Modine

A new standard line of oil-field pumping-engine coolers is announced by the Modine Manufacturing Co., Racine, Wis. Consisting of a radiator, fan, and centrifugal pump built into a sturdy welded steel frame, the coolers are complete, ready to be connected by belt drive to the pumping engine. Replacing the old-fashioned cooling tank, Modine units, circulating water at great velocity, inhibit scale and sludge formation in the engine jackets, postponing for many months costly overhaul shutdowns.

Other advantages include the sectionalized core construction, permitting easy removal of individual sections for cleaning or servicing; the single pulley driving both fan and pump; small size and portability; and the choice of blow-through or draw-through fans.

Buckeye Traction Ditcher Co. Announces New Bulldozer

The Buckeye Traction Ditcher Co., Findlay, Ohio, announces the development of new Buckeye UNITILT cable-controlled bulldozers and trail builders for all makes and models of tractors. The name of the new design is derived from the patented tilting device and the universality of the frame, which permits using either Buckeye bulldozer of trail builder mold boards on the same frame. This latter feature eliminates the original investment in two frames and further simplifies changing over.

The tilting device is located on one sidearm and permits raising or lowering bulldozer or trail builder blade at either end a distance of 12 in. Turning one bolt only is all that is required to effect the tilting adjustment.

Other features of the new design include: construction of the front crossbeam so that the blades hug the radiator, thus reducing the heavy overhanging load on the tractor and reducing wear on front idlers and track rolls; blade curvature which rolls the dirt ahead, reducing "dead" weight and permitting bigger loads in front of the blade; 60-in. lift of blade and unlimited depth of cut below ground level; natural digging action of blade which cuts as deep as operator desires without requiring any mechanical means of creating down pressure; balanced design which prevents tipping of tractor and keeps full length of crawlers on the ground; side arms mounted at drive axle of tractor; rigid, fully braced members to withstand all types of 'dozing work.

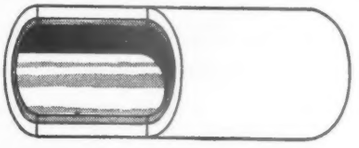
High-Pressure Spiral Packing

A high-pressure spiral packing is now available with the outer layer impregnated with lubricant forced into the packing by a special hot pressure process. The lubricant used is genuine Palmetto graphite grease, which has proven outstandingly successful in the well-known Palmetto braided packing.

The spiral asbestos packing is specially adapted for reciprocating rods and plungers of steam engines and pumps, air and gas compressors, and various special machinery. The packing is regularly furnished in standard 12½-ft. spirals. Additional information can be obtained by addressing the manufacturer, Greene, Tweed & Co., 101 Park Avenue, New York.

Bridgeport Bimetal Tubing for Severe Corrosion Conditions

In oil refining, chemical plants, and in many processing industries, it is frequently found that heat-exchanger tubes and other piping made of a single metal or alloy rapidly fail from corrosion attack both from within and without. Duplex tubing, having an inner tube of one metal or alloy and an outer tube of a different metal, recently introduced by the Bridgeport Brass Co., of Bridgeport, Conn., is rapidly being ap-



plied to new uses in the many other fields where tubing is subjected to two different types of corrosive attack.

For applications of this sort, Bridgeport now manufactures bimetallic tubing, with the combination of metals chosen to meet specific conditions. For oil-refinery work, tubing made of steel outside for corrosive oil vapors and copper inside for circulating fresh water has been found excellent; steel outside for same conditions and admiralty brass inside for circulating salt water. Other combinations successfully used include for certain chemical plants duplex tubing of admiralty outside for circulating brackish water and aluminum inside for certain chemicals; in refrigeration plants using ammonia, a combination of steel outside to resist ammonia attack and copper inside to withstand circulating-water corrosion. Bridgeport's new bimetal composite tubing consisting of copper outside and steel inside is excellent for piping illuminating gas in soil exceptionally corrosive to steel piping. There are many other combinations available for services other than those given here. They can be made up in most any combination of metals or alloys to meet individual specifications.

Illustrated here is the construction of Duplex tubing. By Bridgeport's method of processing at its modern mills, a good close contact is obtained between the two materials in the composite tube without interfering with the heat transfer where that is needed. Where Duplex tubes have to be expanded or rolled into a tube sheet, they are supplied with annealed or tempered ends. Although this new tube now rapidly entering the processing fields generally costs a little more than tubing of one material, by using the correct combination it is often possible to reduce wall thickness, especially where an expensive material had to be used previously. The increased service makes Duplex tubing more economical.

TAYLOR INSTRUMENT MOVES INTO NEW TULSA QUARTERS

Taylor Instrument Companies recently completed a new building in Tulsa at 613-15 East Fourth Street, in which its regional activities will be handled. The building, shown here, represents a 100 per cent increase in floor space over its old quarters and contains a complete repair and assembly plant for servicing all Taylor instruments within the territory served by the office. E. H. Triphaus is regional manager in charge of the Tulsa office, and W. M. Walters is engineer in charge of the assembly shop.

Trackson Announces New Giant Model Tractor Shovel

The Trackson Co., Milwaukee, Wis., announced the addition of a new model to their increasingly popular line of Traxcavators. This new machine is one of the biggest, most powerful tractor shovels ever built and is known as the Model T7. It is available with 2 or 2½-cu. yd. bucket and answers the repeated demands from the heavy construction industry for a bigger Traxcavator capable of handling any type of digging, dirt moving or material handling with ease and speed.

Mounted on the "Caterpillar" D7 tractor, the T7 Traxcavator is truly a giant in size and power, yet is said to be lower in initial cost, operating costs, and yardage costs, than other machines of similar size, power and capacity. In addition, its versatility and multi-purpose utility make it profitably useful on a wide variety of digging, loading, grading and dirt-moving operations, not only as a shovel and loader, but also as a scraper, bulldozer, anglegrader and trail builder.

The full 23,000-lb. push of the tractor can be applied to the bucket to penetrate and dig the toughest of soils, clay, caliche, shale or frost. It travels around the job at speeds up to 6 miles per hour, turns in its own tracks, and has a remarkably fast loading cycle for a machine of its size. The tractor is equipped with extended track frames and specially fitted to give the T7 stability and traction to handle a 2½-cu. yd. bucket and get big production on the toughest jobs.

Handy Truck Cost Book

The increasing tendency of more and more truck operators to keep complete and accurate records of the cost of operating their vehicles is reflected in the demand for a book called "Operating Record for Motor Trucks and Passenger Busses," published by the Dodge Division, Chrysler Corp., Detroit, Mich., according to company officials. The book contains ruled-page forms for each month of the year. On these pages the truck operator can set down daily expenditures for gasoline, oil, repair and maintenance items, drivers' and helpers' wages, speedometer readings, daily mileage, hours of operation, number of stops, number of trips, and the average load. At the end of the month the operator has a concise and easily analyzed record of his truck-operating costs.

AMONG EQUIPMENT MEN...

Rockwell Elected to National Committee on Business Welfare

Col. W. F. Rockwell, president of the Pittsburgh Equitable Meter Co.-Merco Nordstrom Valve Co., has been elected to serve on the National Committee on Business Welfare. This committee has been established by the Chamber of Commerce of the United States to further the aims of the national chamber through many broad objectives designed to solve serious problems affecting business and the general welfare. Through his close contact as a director and an officer in several large companies whose interests are widely diversified, Colonel Rockwell is in a position to give much valuable assistance to the committee in solving the important business problems of today.

Brodie Enlarges Southwest Offices

Ralph N. Brodie Co., Inc., manufacturer of petroleum meters and accessories exclusively, have just recently occupied new and larger quarters at 2815 Canton Street, Dallas, Tex. In keeping with the company's policy of providing greater accommodations for the steadily expanding list of Brodimatic users, the expansion of this important divisional office, under the active and able direction of J. J. Kropp, district manager, will provide vastly increased and complete sales and service facilities to the petroleum industry throughout the Southwest.

Laminated Shim Announces Appointment of New Executives

New appointments of executives are announced by Laminated Shim Co., Inc., Glenbrook, Conn., following the recent meeting of its board of directors. E. B. Nisbet, formerly purchasing agent and treasurer, becomes executive vice president of the company. E. R. Young, the former factory manager, steps into an enlarged portfolio as the new vice president in charge of production. Richard Seipt, as the newly appointed vice president in charge of sales, takes on responsibilities in addition to those held during his term as sales manager. All appointments become effective immediately.

Ihrig Appointed Kobe's Illinois District Manager

The appointment of H. K. Ihrig as district manager in charge of Illinois, Indiana, and Kentucky operations has just been announced by Kobe, Inc., manufacturer of the Kobe hydraulic pumping system. Mr. Ihrig, formerly district representative for Kobe, will headquarter in the company's new offices at Mount Vernon.

Mr. Ihrig brings to his position a well-rounded experience with the Kobe pumping system having previously been associated with the company's technical service work in both Kansas and Oklahoma City.

Mr. Ihrig attended college at the Missouri School of Mines and the engineering school of Oklahoma A. & M. Upon completion of his college work, he became associated with the petroleum engineering department of the Wilcox Oil & Gas Co., later joining the same department of the Phillips Petroleum Co. in Oklahoma City. In 1936 he joined the editorial staff of The Oil and Gas Journal and later became interested in the development of special equipment for the treating of emulsified crude oils and studied this problem in many fields throughout the Mid-Continent area.

The appointment of Mr. Ihrig to his new position is part of an expansion program made necessary by the increasing use of Kobe pumping systems in Illinois operations.

BUSINESS NOTES

E. B. Thornburg, purchasing agent, and R. D. Irwin, serviceman, left Tulsa on March 28 for Illinois, Ohio and Pennsylvania. Mr. Thornburg will inspect a number of Frick-Reid stores in the East, and call on a number of manufacturing connections.

Glyco Products Co., Inc., has moved its offices, plant and laboratories from 148 Lafayette Street, New York, to larger quarters in Brooklyn. The building has greatly improved shipping means, such as railroad sidings, water freight facilities, etc. A considerable amount of new and modern equipment has been installed by the company to increase and improve production facilities. The new address is 230 King Street, Brooklyn, N. Y.

Charles H. Hoefer has been made general superintendent of the Duraloy Co., Scottdale, Pa., manufacturer of high-alloy and stainless-steel castings. Mr. Hoefer was formerly superintendent of the alloy division, Lebanon Steel Foundry, Lebanon, Pa., and also superintendent of the Forging & Casting Corp., division of Allegheny Ludlum Steel Co., Ferndale, Mich., and Empire Steel Castings, Inc., Reading, Pa.

Harvey T. Harrison, general sales manager of the Duraloy Co., Scottdale, Pa., since 1937, has been elected vice president in charge of sales. He first joined Duraloy in 1928 in the New York office. In 1930 he became district manager at Cleveland where he remained until 1937. Mr. Harrison is a graduate of Lafayette College and his entire business career has been spent in the management end or sale of steel and alloys.

J. K. Beeson was elected vice president in charge of sales of Pittsburgh Steel Co. at a meeting of its board of directors on March 31, 1941. Mr. Beeson has been connected with Pittsburgh Steel Co. since 1930 in a number of capacities including assistant superintendent of the Monessen Works, manager of manufacturers' products sales, assistant sales manager and assistant general manager of sales.

Eric R. Woodward, formerly associated with the Barrett Co., has joined the sales development department of the Mathieson Alkali Works, Inc., 60 East Forty-second Street, New York, where he is engaged in promotional work on new products. For several years previously he had specialized in industrial sales work in both the heavy chemical industry and the petroleum industry.

Lane-Wells Co., technical oil-field services, has opened a truck station at Hawkins, Tex., according to Morton T. Higgs, Gulf Coast division manager. L. A. Gratehouse is the operator in charge. The address is Cobbs Garage, Hawkins, Tex.

E. C. Bynum Heads Atlas East Texas Sales District

Atlas Supply Co. announces the appointment of E. C. Bynum as district manager for East Texas, succeeding E. B. Rainey, resigned. Mr. Bynum will have charge of Atlas stores located at Gladewater, Kilgore, and Overton, Tex. Mr. Bynum has been with Atlas approximately 10 years.

E. C. BYNUM

The Gladewater store remains in charge of George R. Donnelly, assisted by R. D. Dickinson and Pat Massey. C. H. Collier has been made manager of the Kilgore store. Ray Estes succeeds E. C. Bynum as manager of the Overton store, and will be assisted by J. H. McCrary. L. S. Hensy is district sales engineer.

McPhee Is Named to New Post at Dodge Truck Plant

Appointment of E. J. McPhee as general superintendent of the Dodge Truck Division, Chrysler Corp., is announced by R. H. Dragsdorf, plant manager. Mr. McPhee has been superintendent of assembly since production of Dodge trucks was started in the new Mound Road plant in September 1938. He was one of a group of manufacturing officials who helped map production processes and lay out the Dodge truck plant.

Formerly he had been chief inspector of production at the Chrysler Corp. Highland Park plant and superintendent of assembly at the Chrysler Jefferson plant. A native Detroiter, Mr. McPhee has served continuously in the automobile business for more than a quarter of a century.

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212 Kellogg Building, Washington, D. C.

Leases and Drilling Blocks

LEASES—East Texas, La., South Ark. 20 acres up, dollar acre up.—Owners—Address Attorney. Box 1122, Little Rock, Ark.

EAST TEXAS Woodbine-Trinity sand wildcats starting. Leases afford 10 to 50 for 1 bet. Has already happened past 60 days. E. CROFT, PROCTOR, TEXAS.

INVESTIGATIONS, REPORTS AND MAPS
On producing or nonproducing oil land in Louisiana. Nominal fee.
Petroleum Service Bureau
606 Gravier St., New Orleans

WARD-Crane sec. 18B 28, near Silurian test; cheap fee or lease. J. G. Smith, 215 Littlefield Bldg., Austin, Texas.

NEW MEXICO
Oil and Gas Leases and Royalties
ROY G. BARTON, Hobbs, N. M.

HOMER L. FITCH, GEOPHYSICIST AND LOCATION ENGINEER
WHY drill dry holes? Our method only locates structures which contain oil or gas. Drawer 711, Brownsville, Texas.

NEW MEXICO
STATE OIL AND GAS LEASES
FORTY acres and multiples thereof. Near major company lease blocks. Five cent rentals. Ten Year term. Write for information.

HARRY S. WRIGHT
New Mexico State Lessee
Farmington, New Mexico

WATER FLOODING proven most successful method of recovery. Results outstanding, no failures. Small leases made to produce upwards 400 Bbl. daily. Low cost, high returns. No gamble. 85% of possibilities still in sand after pumping 25 years. Possible to recover 50% of remaining. Have several leases with excellent sand bodies from 400 to 750 feet deep. Write H. B. Snyder, Box 126, Ottawa, Kansas.

PECOS COUNTY TEXAS ACREAGE: Can deliver new 10 year lease on 5100 acres about 28 miles East Fort Stockton cheap. Address P. O. Box 372, Jasper, Tex.

60 ACRES Semi Proven lease for development, on override bases in Texas. Wells flow. Box A-432, The Oil and Gas Journal, Tulsa, Okla.

10,000-ACRE BLOCK of leases in recommended Rocky Mountain area. Want good operator to associate in development. Box A-423, The Oil and Gas Journal, Tulsa, Okla.

FOR SALE Oil and gas leases located on structure and near well now drilling. Depth of drilling, through the Corniferous, 700 to 800 feet. W. P. Harley, Bowling Green, Ky.

PRODUCING oil leases wanted — have associates desirous of purchasing large producing leases. Deal must involve $1,000,000 or more. Cash available for producing properties at the right price. Address—1628 Board of Trade Building, Chicago, Illinois.

Leases and Drilling Blocks

1440-A. Oil and Gas Lease in new hot area near major Co. drilling operations, California. Drilling proposition or cash sale. P. O. Box 762, Oakland, Calif.

WILL sacrifice for quick sale account of health, Lea County, New Mexico 40 acres each Sections 15 and 21, 17S-36E. Lock Box 126, Vinton, Va.

BIG oil play—N. E. Kans. Leases in all counties, near drilling and oil fields. Harry Haynes, Grantville, Kans.

OFFER very attractive producing oil lease in Central Texas field, investment $100,000.00; no trade. Edwin McKellar, Austin, Texas.

FOR SALE—Lease S. E. 21-14n-3w and Roy. N. W. 10-14n-3w. Mary F. Williams, P. O. Box 223, Frederick, Maryland.

U. S. OIL RESERVE lands can be filed for lease on limited acreage by American Citizens. Want several join me in filing block in developing Rocky Mountain area. Big opportunity. Small expense. Box A-346, The Oil and Gas Journal, Tulsa, Okla.

DRILLER with idle rig capable of drilling well to 8,000 ft. in Southeast Louisiana. Have good block surrounded by Major Oil Companies. Want operator who can assist in financing well or help promote same. Good deal for right party. Answer in detail. Box A-440, The Oil and Gas Journal, Tulsa, Okla.

Mailing Lists

ROYALTY owners, Oil Investors, Unit holders, Stockholders in Oil and Royalty Companies. Personnel lists of every branch of oil industry. All by States. We buy lists. New catalogues ready. Oil Industry Mailing List Co., Tulsa Loan Bldg., Tulsa, Oklahoma.

Help Wanted

WANTED experienced refinery designing draftsmen, permanent. Salary. Box A-436, The Oil and Gas Journal, Tulsa, Okla.

SALESMAN WANTED: Real opportunity for salesman with knowledge of heavy fuel and diesel market. Must have good references. Don't apply unless you can qualify. Box 97, Salem, Nebraska.

Chief Chemist for 2,000 Bbl. Combination Skimming, Cracking and Asphalt Plant. Must have asphalt experience. Give age, marital status, references and salary expected.

SHALLOW WATER REFINING CO.
Garden City, Kansas

Situations Wanted

REF. ENG.: Supervisor, 11 yrs. broad and gen. ref. exp. in lubes, naphthas, gasoline, wax, distillation and cracking; now employed, desires change. Exp. incl. research, ref. inspec. chief chem. proc. eng.; ability demonstrated. Reply Box A-411, The Oil and Gas Journal, Tulsa, Okla.

DISTRIBUTOR OR SALES AGENT
Accounts wanted by Sales Executive from Manufacturers or Distributors of Oil Well Supplies not represented in Tulsa. Well acquainted in Oklahoma and Kansas. Established record for producing results. Will open office and personally contact the trade, giving dignified and satisfactory representation. Method of compensation to be agreed upon. Box A-434, The Oil and Gas Journal, Tulsa, Okla.

DIESEL Engineer, 8 years' practical experience, operation and maintenance. Experienced Pipe Line Operator. Married. Stationary or free to travel. Reply Box A-421, The Oil and Gas Journal, Tulsa Oklahoma.

CRUDE and cracking still operator desires connection with reliable company, 12 years' experience. Familiar with installation, operation and repair of electrically and air operated control instruments. References furnished. Box A-441, The Oil and Gas Journal, Tulsa, Okla.

Geophysical Service

WHY does the needle of the compass point North? Why do the Geese fly North in the Spring How does the Bird Dog point Quail? It must be a natural law in operation. Newton's Law and Relativity are facts. It is a fact that Oil and Gas are located by a Direct Geophysical Method. Locate your next well this way and have a producer, not just a hole in the ground. Gravitational Selector, 14957 Lakewood Heights Blvd., Lakewood, Ohio.

Ranches—Farm Lands

WHY not invest in a New Mexico ranch? Have from 2 to 200 sections. Write me for full descriptions.
J. T. TRIGG, Lubbock, Texas.

SACRIFICE 5,000 A. Rich Colo., Prairie land. 40 to 640 A. tracts. Good titles. $2.50 Acre, Address: Owner, 2644 Rimpau Blvd., Los Angeles.

Incorporations

DELAWARE CHARTERS: Complete service $35. Submitted forms. Chas. G Guyer, Inc., Wilmington, Delaware.

CAPITAL SEEKERS
Put your project before 260 Key-Men. Cost trifling. Details free. AMSTER LEONARD Fox Theater Building, Detroit, Michigan

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ANDREW J. BARRETT
The Philtower
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Sell in the most active area in the United States—The Permian Basin of West Texas and Southeastern New Mexico. From the standpoint of royalty investors this area has much to offer. Can supply you with choice non-producing royalties located on geophysical highs. Also drilling blocks, close in acreage to production, or wildcat leases. I maintain my own field men who cover this area for me. All offerings meet the requirements of the Security and Exchange Commission. Inquiries invited.

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Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

Geologic Survey

U. S. and State lists of Geological publications available FREE upon application. Cornwall's Book Store, 723 11th Street N. W., Washington, D. C.

Business Opportunities

A REAL opportunity if you can finance an oil developing project with $5000 to $10,000, 800 to 2000 ft. Unlimited future. D. H. Reavis, White Bluff, Tenn.

Legal Blanks

BURKHART'S legal blanks and general forms serving Mid-Cont. oil field since 1908—Okla. Kans. N. Mex. Tex. Ala. Ark. Fla. Ga. Ill. Ind. Ky. La. Mich. Miss. Mo. Neb. N. Dak. Tenn. Wyo. Free catalog samples on request. Burkhart Ptg. & Sta Co., 115 S. Cinn., Tulsa, Oklahoma.

Equipment Wanted

WE ARE interested in buying for cash 100 to 150 tons, of light used, fishing and drilling cable tools, all kinds, suitable for spudders to drill up to 2,000 feet deep. Prices by the ton F.O.B. cars, not to exceed $20.00 per ton. Buyer will inspect personally. Will leave Cuba about May 18. Write for detailed list and specifications to: Oil Well Drilling Co., Apartado No. 15, Los Arabos, Cuba.

WIRE IMMEDIATELY

If you have or know of two or more 1200 H.P. or larger natural Gas Engines with or without direct current Generators for 250 volts.

CONSOLIDATED PRODUCTS CO., INC.
13 Park Row
New York, N. Y.

For Sale—Equipment

FOR SALE at Bartlesville: 1 set shear poles. Complete for National Drilling Machine. I. T. I. O., Bartlesville, Okla.

STEAM SLUSH PUMPS: 5—18" Luceys. 2—18" Johnson "G," 1—14" Ideal. Lucey Products Corp., Tulsa, Okla.

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Classified advertising rates: First insertion, 35 cents a line; each additional insertion, 25 cents a line, PAYABLE IN ADVANCE. Six words usually make a line. Count as a word each one-letter word and each group of figures. White-space computed at regular line rate. Allow two extra lines for blind ads. Ads of less than three lines not accepted. No formal acknowledgment is made, and proofs cannot be shown in advance of publication.

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3 Lines	*$1.05*	*$1.80*	*$2.55*	*$3.30*	*7 Lines*	*$2.45*	*$4.20*	*$5.95*	*$7.70*
4 Lines	*1.40*	*2.40*	*3.40*	*4.40*	*8 Lines*	*2.80*	*4.80*	*6.80*	*8.80*
5 Lines	*1.75*	*3.00*	*4.25*	*5.50*	*9 Lines*	*3.15*	*5.40*	*7.65*	*9.90*
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We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

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BUBBLE TOWER—6′ 6″ Dia. by 72′ High by 3/8″ Shell; 24 Trays; Foster Wheeler Construction—2,300 Bbl. Per Day Capacity

VAPOR TOWER—5′ 6″ Dia. by 50′ High by 1/2″ Shell; 3 Baffles at Top

New M. W. KELLOGG HEAT EXCHANGERS—VERTICAL; 1240 Sq. Ft. Surface; Each Complete With Structural Supports

Write Immediately for Further Details

SONKEN-GALAMBA SUPPLY COMPANY

W. C. Berry and H. J. Galamba
Riverview at Second, Kansas City, Kansas

Robt. W. Duden
2100 S. Union, Tulsa, Oklahoma

FOR SALE: At our Oklahoma City warehouse slightly used Cardwell KS DHS skid type oil well servicing unit equipped with DHK Waukesha motor. I. T. I. O. Co., Bartlesville, Okla.

FOR SALE

One gasoline drilling rig with two 85 H.P. Waukesha motors and unitized draw works complete.
300 sets 3″ A.P.I. tool joints.
10,000 Ft. 7″ O.D. 26# seamless casing, once run.
15,000 Ft. 4½″ O.D. seamless drill pipe equipped with both regular and full hole tool joints.
In addition to the above we have 20,000 Ft. of 6″ screw line pipe in Oklahoma; also drilling rig capable of drilling to 6500 feet, complete stock of line pipe, casing, drilling and pumping equipment.

Wire, Write or Phone for Prices.

Louisiana Iron & Supply Co.
Shreveport, La.

FOR SALE OR RENT: Gas engine powered Rotary Drilling Rig complete. Suitable for 4,500′ drilling. Box 1360. Phone 312, Seminole, Okla.

FOR SALE: 1—Cardwell Skid Unit, 2—10 x 4½ x 10 Chicago Pneumatic Compressors, 10,000 ft.—5¾″ OD Plain End Pipe; Williams Supply Co., Bartlesville, Okla.

FOR SALE: 8—90 H.P. Superior Twin Gas Engines with direct connected compressor 11½ x 16 and 5½ x 16 complete. Leonard Smith, 1910 First National Building, Oklahoma City, Oklahoma. LD 459 or 2-5415.

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FOR SALE: Refinery Equipment of all descriptions. Fractionating towers, treating towers, etc. built to your specifications. Write P. O. Box 1671, Wichita Kans., or Box 49, Fairfield, Ill. Western Tank & Road Supply Co.

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FOR SALE: 1—Ideco Portable Standard Rig suitable for drilling, pumping, or servicing, complete less motor. I.T.I.O., Bartlesville, Okla.

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Well maintained and ready for immediate service.
May other TANK CARS for sale, too.

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1—18 x 6 x 20 National Simplex Pump, #18465, outside and packed pot valve type, and 1—Byron Jackson 4 x 15 two Stg. VC #100983 500 GPM Motor Driven. Box 1011, Mount Pleasant, Texas.

MECHANICAL ROTARY DRILLING RIG Complete outfit (less Drill Pipe) for deep drilling. Draw Works Assembly powered by 14 x 18 2-cylinder Continental Fairbanks-Morse Oil Engine. Type H Emsco Reverse Clutch. 7¼″ x 14″ Gardner-Denver Slush Pump powered with 14 x 18 2-cylinder Continental Fairbanks-Morse Oil Engine. Emsco 8″ Jack Shaft Unitized 54″ Draw Works. Emsco Table, Traveling Block, Crown Block and other related tools and equipment to complete the Rig. These tools are in excellent condition. Been used to drill only five wells. For sale because owner's present work calls for lighter equipment. Priced to sell. Located in Oklahoma City area. For detailed list of equipment, price, terms, etc. contact the Bridgeport Machine Company, Wichita, Kansas or branches.

FOR SALE

1 Rotary Drilling Rig D. C. Electric Powered By 2—300 HP Waukesha Gas Engines; complete LESS Drill Pipe.
1 Large Mechanical Rotary Drilling Rig, Tex-Rope driven with Large Portable Clutch powered by 2—300 HP Waukesha Gas Engines; complete LESS Drill Pipe.
1 Cable Tool Drilling Unit Lee C. Moore Type "B" Front, Unitized Bull Wheels with ⅞″ x 4500′ Drilling Line. O.C.S. Greyhound Chain driven Sand Reel complete with ⅞″ x 5500′ Sand Line, Boiler, Engine and Tools Complete. Has drilled in two wells after Rotary. Practically new.

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2—165 H.P. Type X
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Can be furnished with 6¼″ x 20″ to 18″ x 20″ compressor cylinders completely overhauled with new or used power cylinders.

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3—#25 Distillation Units completely rebuilt.
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8—7′ x 40′ Porcelain Lined Tanks Good for Gasoline, Acids or other corrosive liquids.

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FOR SALE: At Bartlesville 1—2A National Portable Drilling Machine Less Tools. I. T. I. O. Co., Bartlesville, Okla.

COMPLETE STEAM RIG

First Class Condition — 2500 foot depth — South Texas Only. Will farm out on proven acreage for interest in same.

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SALE—New 9⅝″—13¾″—13″ O.D. Casing Couplings. Want to buy a SHEAR and PLATFORM SCALE. Box 574, Tulsa.

New York Markets

(Continued from Page 87)

reported similarly stronger with some suppliers holding for 22 cents for 150-viscosity material and for 24 cents on 200-viscosity grades. These quotations are a cent above the current low on which all transactions were based a week earlier.

A stimulating factor in the lubricating-oil picture has been the volume of exports. While below prewar levels, total exports in February, which amounted to 650,000 bbl., were 20 per cent higher than in January. The bulk of the increase in the February exports was accounted for by Japan which doubled its January total. Russia also showed an increase and the United Kingdom, normally the best foreign market for United States lubricating oils, maintained its rate of purchases.

Tank-Wagon Changes

(Continued from Page 88)

follows: April 1, Albany, N. Y., 0.3 cent; April 2, New York City, 0.4 cent; April 3, Rochester, N. Y., 0.4 cent; April 3, Syracuse, N. Y., 1 cent; April 2, Portland, Me., 0.3 cent; April 2, Manchester, N. H., 0.5 cent; April 1, Burlington, Vt., 0.3 cent. The tank-wagon price for kerosene was increased 0.2 cent per gallon March 26 at New York and reduced 0.1 cent the same day at Boston, Mass.

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